TESTING APPARATUS FOR A HALLADAY CHASSIS

BY
D. GOLDBERG
H. N. PARSONS

ARMOUR INSTITUTE OF TECHNOLOGY
1911

625. 6
G 57

Illinois Institute
of Technology
Libraries

AT 217
Goldberg, David
The design and construction
 of a complete testing

THE DESIGN AND CONSTRUCTION OF A COMPLETE TESTING APPARATUS FOR A 40 HORSE POWER

HALLADAY CHASSIS

A THESIS

PRESENTED BY

DAVID GOLDBERG
HARRY N. PARSONS

TO THE

PRESIDENT AND FACULTY

OF

ARMOUR INSTITUTE OF TECHNOLOGY

FOR THE DEGREE OF

BACHELOR OF SCIENCE IN MECHANICAL ENGINEERING

HAVING COMPLETED THE PRESCRIBED COURSE OF STUDY IN

MECHANICAL ENGINEERING

MAY 25, 1911

G. F. Gebhardt
H. M. Raymond
L. C. Monin

ILLINOIS INSTITUTE OF TECHNOLOGY
PAUL V. GALVIN LIBRARY
35 WEST 33RD STREET
CHICAGO, IL 60616

THE OBJECT

The object of this thesis is the design and construction of a complete testing apparatus for a forty horsepower halladay chassis.

22774

PREFACE

In view of the fact that a long felt need for a complete automobile testing apparatus, was eminent this thesis was proposed. The object of it was to design and contruct a complete testing apparatus for a 40 horsepower Halladay chassis. One which would show the various losses in power that occur in the parts of transmission on the car and one which would admit of studying the various problems arising in the operation of the present day car. The text shows in a general way what has been done and what is intended to be done toward the completion of the apparatus.

This thesis is divided into:

Part I The Design of the Apparatus.

Part II The Construction of the Apparatus.

Part III The Testing of the Car.

Part IV Details of Passenger Cars on the

TABLE OF CONTENTS.

Page

Part I The Design of the Apparatus 2
A The Chassis 3
B The Test Rack 6
C The Absorption Dy Dynamometer 9
D The Kenerson Trans Transmission Dynamometers 12
E Revolution Counter 15
F Chronometer 18
G Magnetic Switch 20
Part II Construction of the Apparatus 26
A The Test Rack 27
B Absorption Dynamometer 31
C Kenerson Dynamometer 34
Part III The Testing of Car 38

Part VI Details of Passenger Automobiles on the American Market for 1911 after 45

LIST OF ILLUSTRATIONS.

		Page
1	Testing Rack	6 a
2	Assembly of Absorption Dynamometer	11 a
3	Details of Absorption Dynamometer	11 b
4	Hess-Bright bearing for Dynamometer	11 c
5	Kenerson Dynamometer	14 a
6	Kenerson Dynamometer after the Engine	14 b
7	Kenerson Dynamometer after Transmission	14 c
8	Revolution Counter	17 a
9	Chronometer	19 a
10	Magnetic Switch	21 a
11	Wireing Diagram	22 a
12	Counter Board	23 a
13	Efficiency Apparatus	38 a
14	Assembly View of entire Apparatus	after 44
15	Horse Power Chart	

PART I

The Design of the Apparatus.

Introduction.

THE CHASSIS.

The chassis for which the testing apparatus was designed and which will be tested is a forty horse-power Halladay, manufactured by the Streator Motor Car Co. of Streator, Ill. It has a wheel base of 118.5 ichnes, a tread of 56 inches and the wheels are 36 inches in diameter having 1 5/8 inch spokes. The wheels carry tires 36"x3½". The frame is of cold pressed steel, resting upon semi-elliptic springs in the front and three quarter elliptic in the rear. The springs are 36 ichnes long and 2 inches wide. The front axle is of pressed steel and rear axle has nickel steel shafts incased in a pressed steel housing. There are two sets of brakes, on the rear wheels of the ex-

panding type and these are thermoid lined. The drive is of the universal bevel gear type having a single universal joint and being entirely inclosed. The car has a selective type of transmission, having three speeds forward and reverse. The clutch is an improved multiple disctype, housed in the fly wheel and the discs runs continually in oil. A Rutenber motor supplies the power and has four 4½"x5" cylinders lubricated by a constant level splash feed system. The cooling of the cylinders is done by means of water circulating by means of a pump, through a honeycomb radiator.

The ignition is brought about by spark plugs supplied by a Bosch magneto and timed by a La Coste Timer. All unnecessary equipment such as lamps, foot

boards and flooring have been removed.

The weight of the chassis is 2750 pounds.

THE DESIGN OF THE APPARATUS.

The Test Rack.

To find the power transmitted by the rear wheels of the car some means of absorbing that power is necessary. For that purpose the test rack sown in figure (I)was designed and constructed. This rack consists of a frame (A) of wood, built as shown in the figure. To this frame are bolted four shaft hangers (B), two at each end of the frame, having roller bearings and on each end of each shaft is a pulley (E). A rubbered canvas belt connects the-- two pulleys on the same side of the rack and upon these two belts rest the rear wheels of the car. Fastened to the rear shaft and close to the bearing is an absorption dynamometer (H) for absorbing the power transmitted to the pulleys by

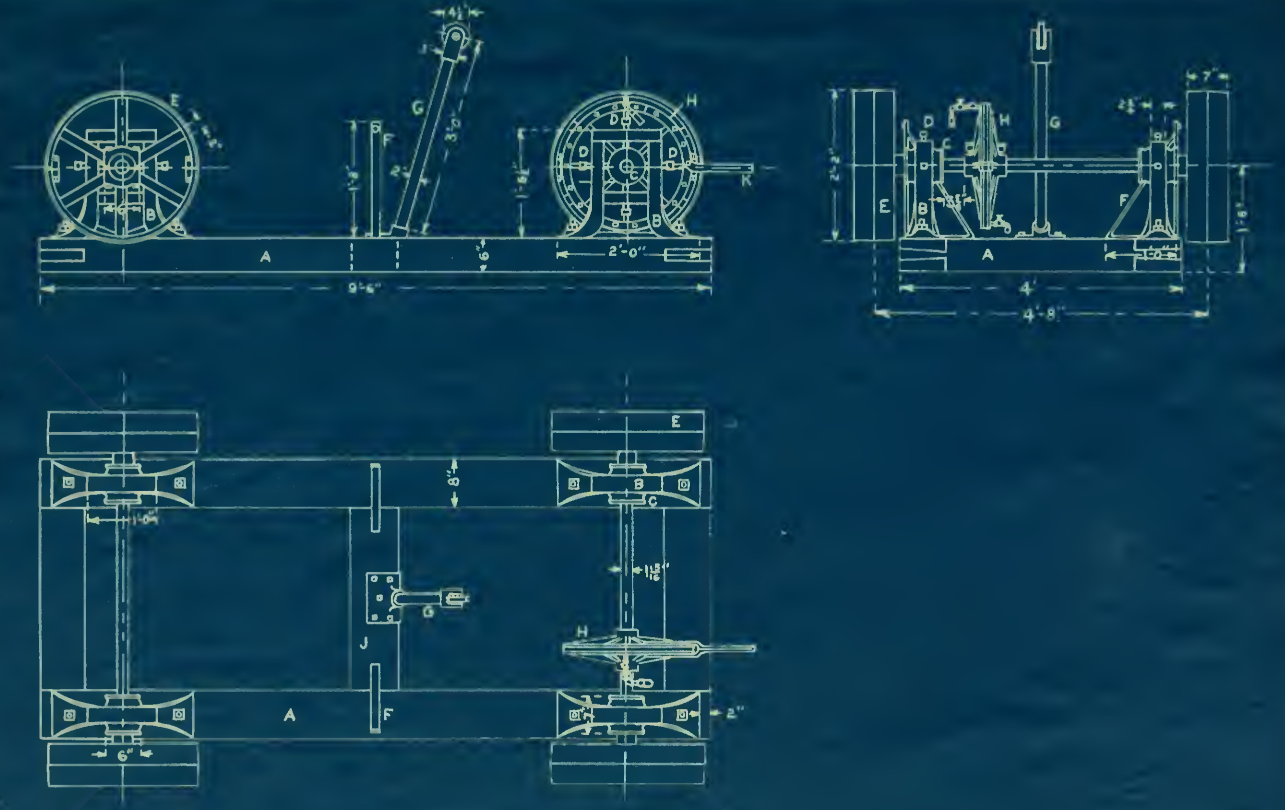


Figure 1.

the wheels of the car upon the belts. On the middle cross piece of the frame at (F), one on each side, are two braces which keep the car from having any side motion. In the middle of the cross piece is the upright strut (G) at one end of which is a grooved pulley. Over this pulley runs a flexible cable one end of which is attached to the rear of the car and to the other maybe hung weights. These weights set upon platform scales so that any reduction in their weight, due to the drawbar pull of the car, may be determined.

This test rack rests upon the floor and the rear wheels of the car rest upon the belts as shown in the assembled view of the apparatus. The front end of the car is raised from the floor and rests upon two adjustable stands as shown in

the figure (15). In case that a belt should break the car is restrained from falling by means of two chains fastened to two helical springs suspended from the ceiling.. These chains fasten to two turnbuckles which have the hooks on one for holding the car up, and these turnbuckles serve as a means of raising the car completely off of the belts or adjusting the tension of the belts.

THE ABSORPTION DYNAMOMETER.

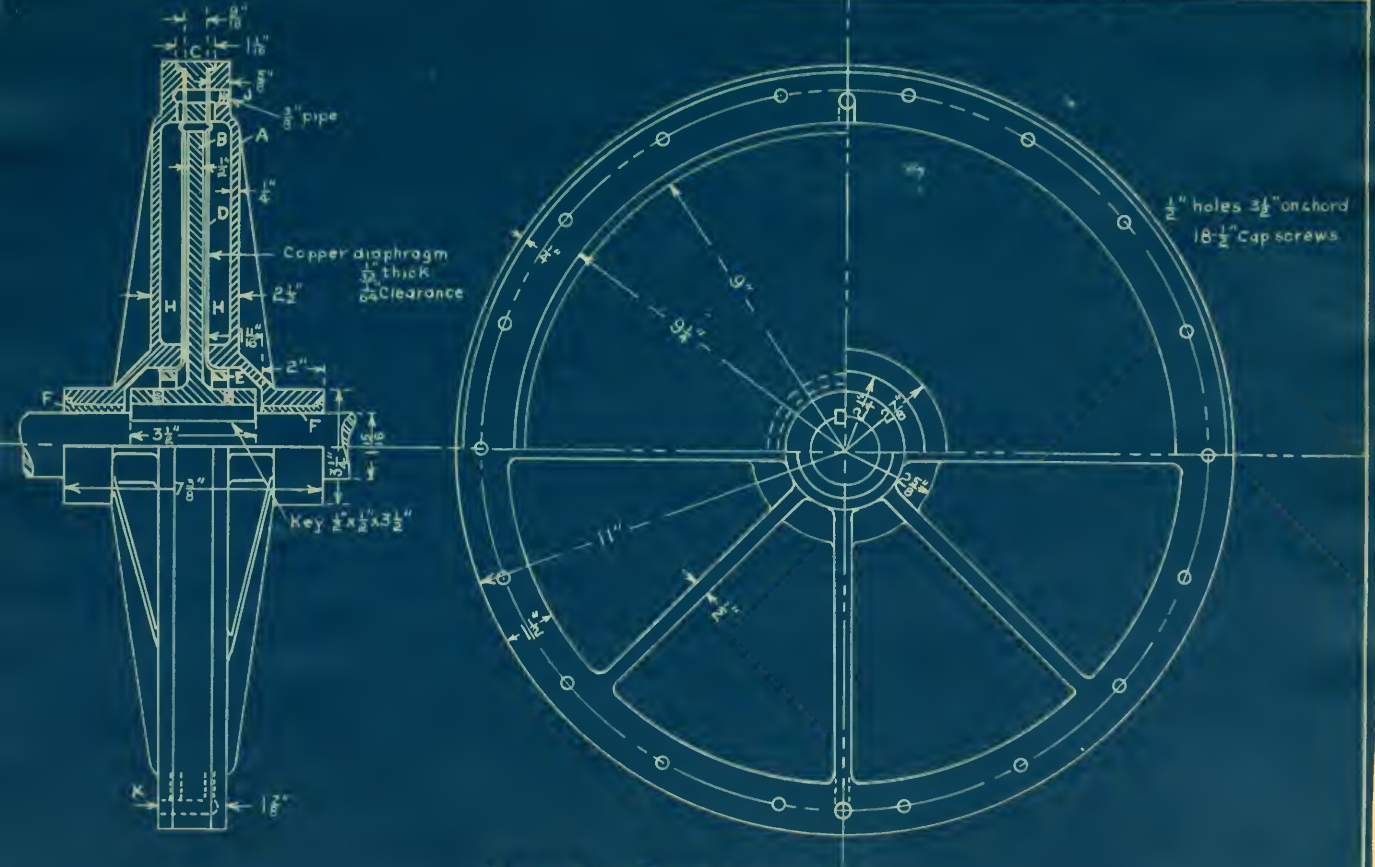
This form of dynamometer was chosen because if its compactness and because of its capability of fine adjustment. The dynamometer is shown in Figures 2 and 3 and these will be referred to in the text.

The dynamometer or brake consists of a cast iron disc (B) keyed to the rear shaft of the test rack and which rotates between two stationary copper diaphragms (D). The diaphragms and disc are incased in a cast iron casing (A) which is free to rotate upon the shaft. The diaphragms are attached to the casing at the centre and held water tight by means of the wedge rings (E). The outer joint is made tight by means of the cap bolts which hold the dynamometer together. The space between the diaphragms and disc is maintained by

means of a ring (C) and this space can be made larger or smaller by inserting paper gaskets between the casing and the diaphragms or between the ring and the diaphragms as the case may be. It can be fed to the disc through a hole in the middle ring (C) or from cups which feed to the brass bearings (F). Water enters at the top of the dynamometer at (J) and is distributed equally on both sides of the disc into each of the annular spaces (h). It leaves at (K) through an opening similar to that through which it enters. The pressure of the water may be regulated by valves on the entrance and discharge piping.

The power is absorbed by the friction between the copper diaphragms and the cast iron disc, and this friction is

regulated by the water pressure on the diaphragms. By regulating the valves any pressure can be obtained thus giving any desired load. Attached to the casing is an arm, shown at (K) in Fig. I, which,, when the dynamometer is in operation rests upon a strut set upon a platform scale. Knowing the length of this arm from the centre of the shaft to the fulcrum on the strut, and the pounds force measured by the scales the power absorbed can be determined.



Absorption Dynamometer.
Figure 2.

1/4" = 1"

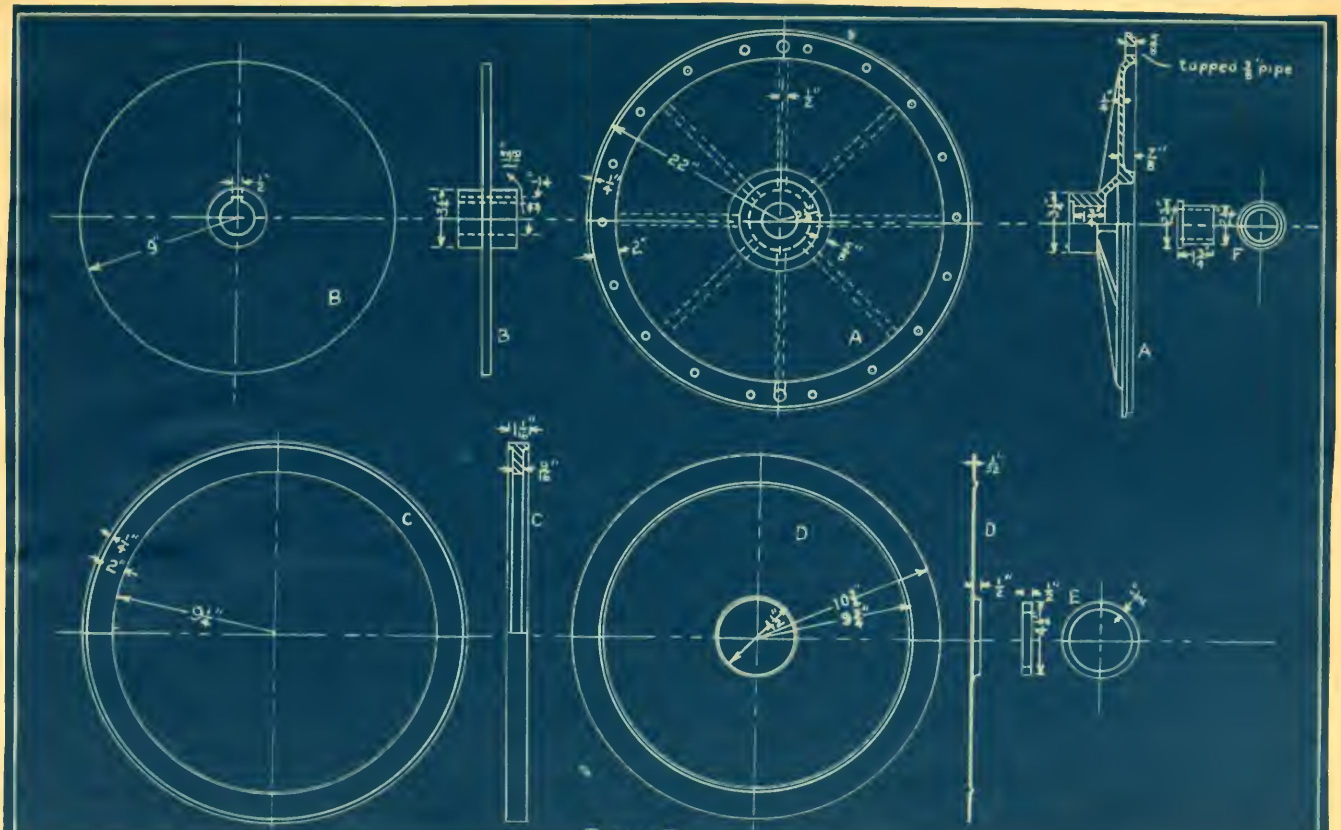


Figure 3.

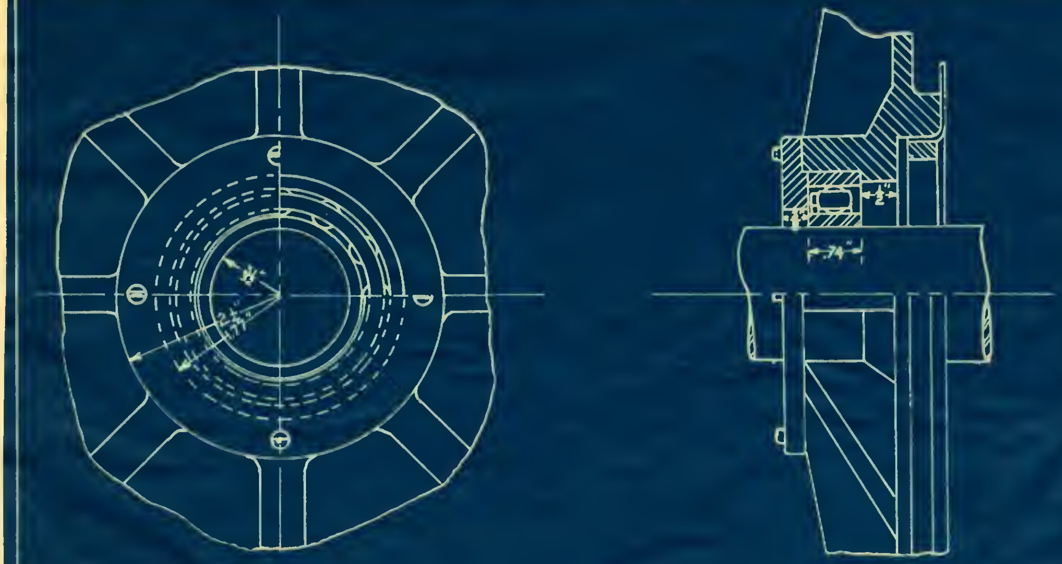


Figure 4

THE
KENERSON TRANSMISSION
DYNAMOMETERS.

To determine the loss of power between the engine and the transmission gearing of the car, and also between the transmission gearing and the differential two Kenerson dynamometers will be used. This form of dynamometer was chosen because of its compactness; and, owing to lack of space around the parts where it is to be used, its size also makes it adaptable. In Fig. IV. Page the corresponding parts of the dynamometer are given the same letters as, and referred to, in the following;

The couplings (A) and (B), each, keyed to its respective shaft, are held loosely together by the stud bolts (C).

The holes in the flange (A) are larger than the studs (C), so that these studs have no part in transmitting power from one shaft to the other. The power is transmitted from (A) to (B) through the agency of the latches (L), four of which are arranged around the circumference of the flange (B). These latches are mounted and are free to turn on the studs (E). The two fingers of the latches engage the studs (F) on the flange (A). On the ends of each latch are knife edges parallel to the stud about which the latch turns. For either direction of rotation of the flange (A) the latches (L) which are in effect double bell crank levers, will exert a pressure on the disc (G), tending to force it axially along the hub of the coupling (L) and this pressure is proportional to the torque.

between the end-thrust ball, or roller bearing (MM) is helf the stationary ring (S) which is the weighing member. (O) is a thrust collar screwed on the hub (B) and (P) is its check nut which is ordinarily pinned to the hub when in position. The stationary member (S) in the form of a ring surrounding the shaft, is prevented from rotating by fastening to some fixed object the attached arm (T). In this ring is an annular cavity covered by a thin flexible copper diaphragm (D) against which the ball race of one of the thrust bearings presses. The edge of this ball race is slightly chambered to allow some motion to the diaphragm. The cavity is filled with a fluid, such as oil and connected by means of a tube to a gauge The oil pressure measured by the gauge is proportional to the pressure between the thrust-bearings which in turn is proportional to the torque.

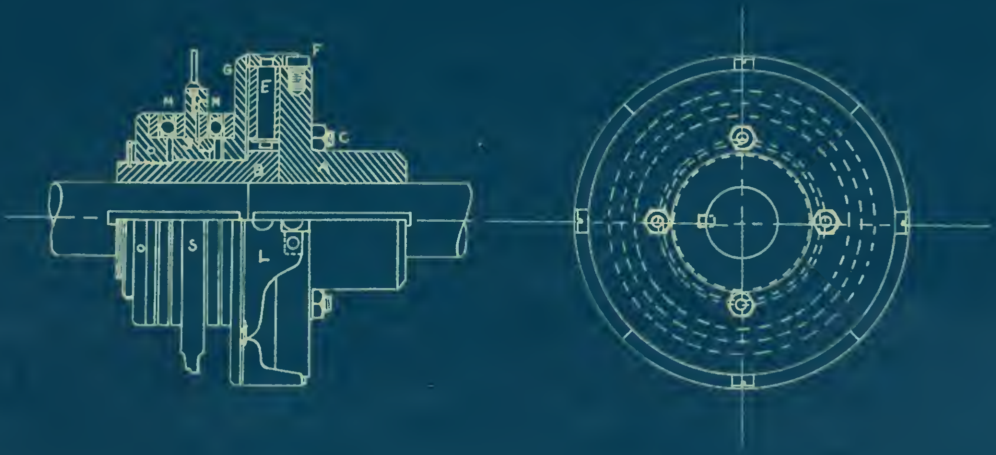


Figure 5.

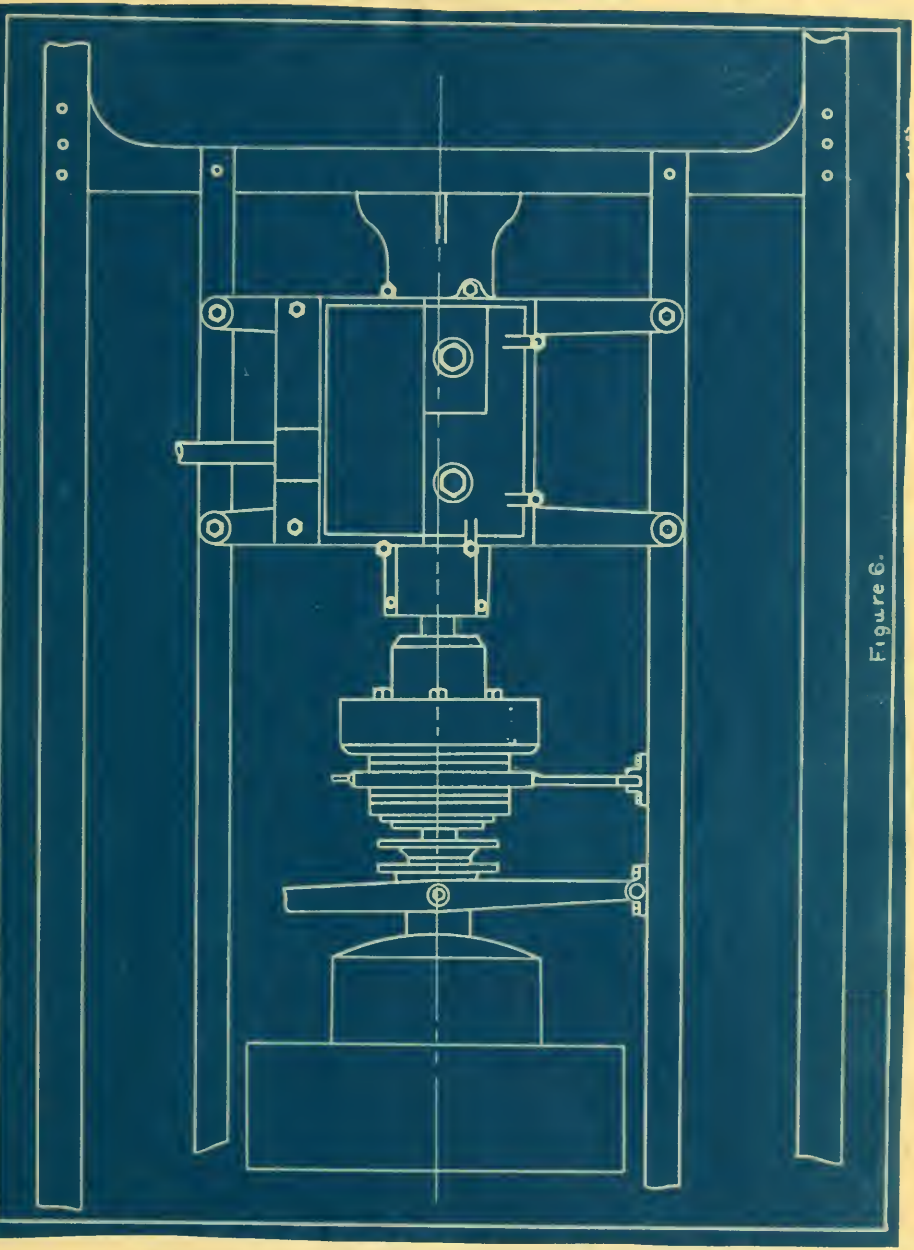


Figure 6.

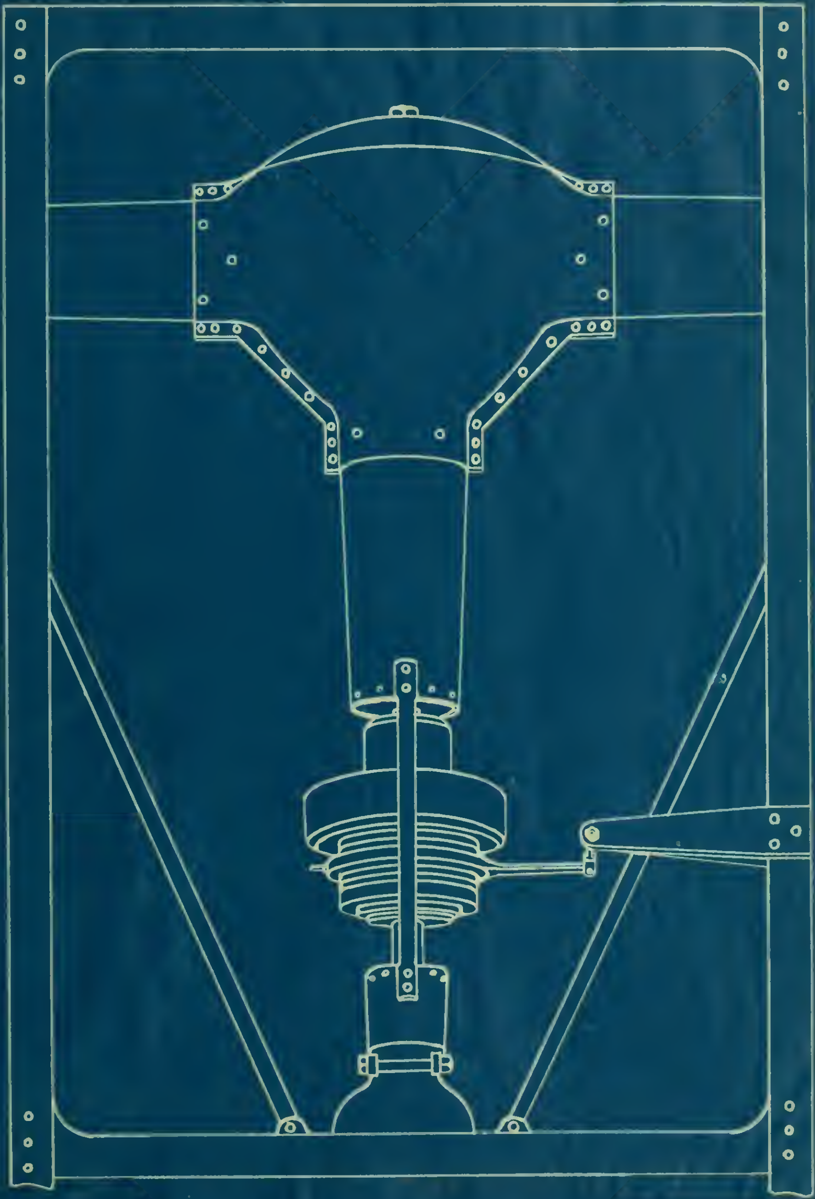


Figure 7.

REVOLUTION COUNTER.

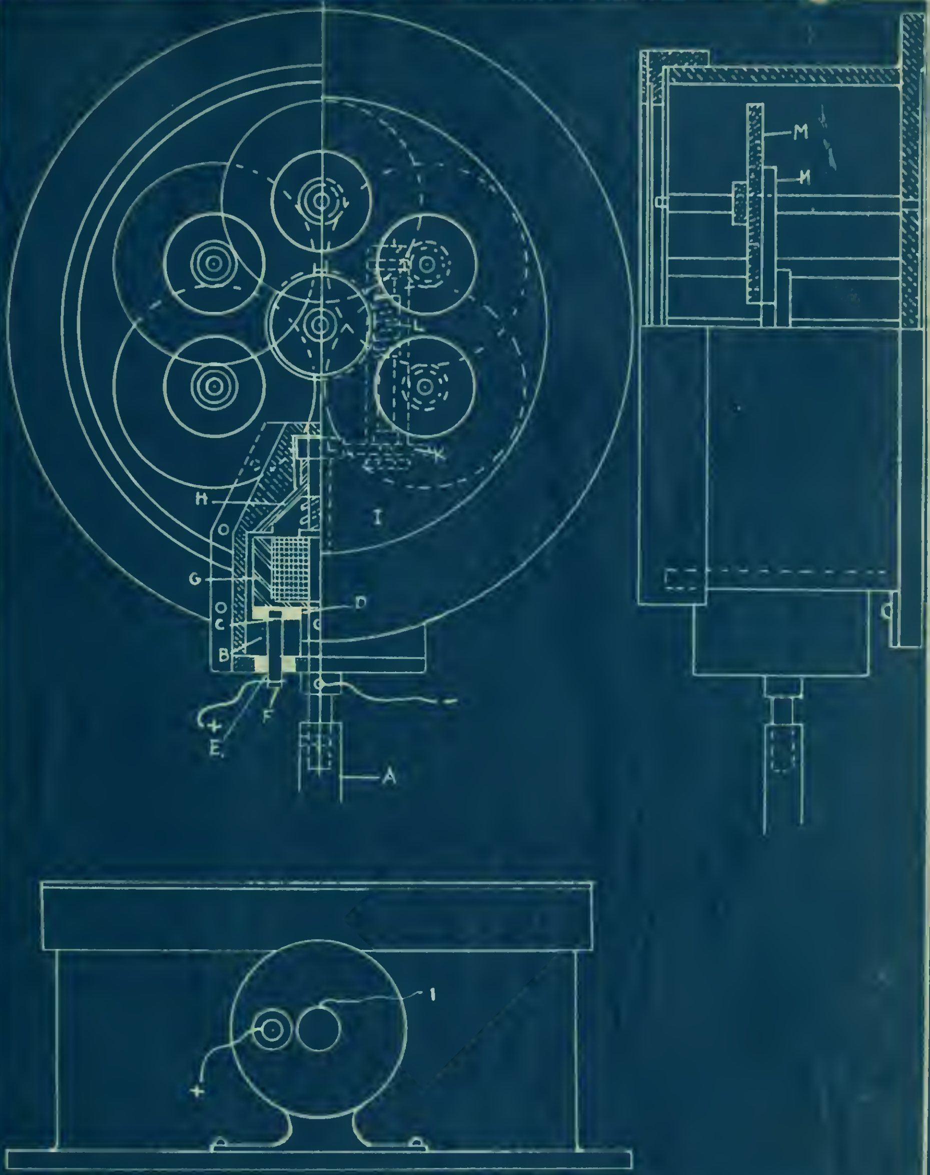
It has been our endeavor to make the speed recording devices totally independent of human error. To this end we have designed speed indicators which are operated mechanically by magnetic switches. Referring to Fig. VIII. is a drawing of one of the revolution counters.

A flexible shaft is connected rigidly to that part of the chassis, of which the revolutions are to be taken. This is shown in Fig. VIII. by letter (A) This flexible shaft is rigidly connected to another solid shaft which turns inside of the compartment (B). On this shaft is a hollow steel cup in which is wound an armature. One end of the winding is grounded to the shaft while the other end

is connected to a copper ring (C) insulated from the cup by means of a hard rubber enclosing cup (D). A brush (F) is insulated from the compartment (B) by means of an encompassing insulating ring (E). When current is passed through the armature the cup (G) becomes strongly magnetic and attracts the cone shaped cup (H). As this cup (H) is free to rotate on the shaft when it is attracted to cup (G) it revolves with it as one piece. When the current is broken, the spring (I) forces the cup (H) against its seat and friction which is proportional to the pressure and surface instantly checks the rotation. The mechanism just expalined acts as a magnetic clutch so that when a complete circuit is made the gear wheel (J) rotates as one piece with the flexible shaft (A). When the circuit is broken

the rotation is checked by means of the brake.

The gear wheel (I) is in mesh with the gear wheel (K) and as this is solidly connected with the worm gear (L) any rotation of (J) will rotate (L). From (L) on the gears are stepped down ten to one so that ten rotations of (L) will make one rotation of the unit revolution counter. Also from here on the gear ratio is the same. The revolutions of that part of the chassis are read the same as any other meter.



REVOLUTION COUNTER WITH MAGNETIC CLUTCH

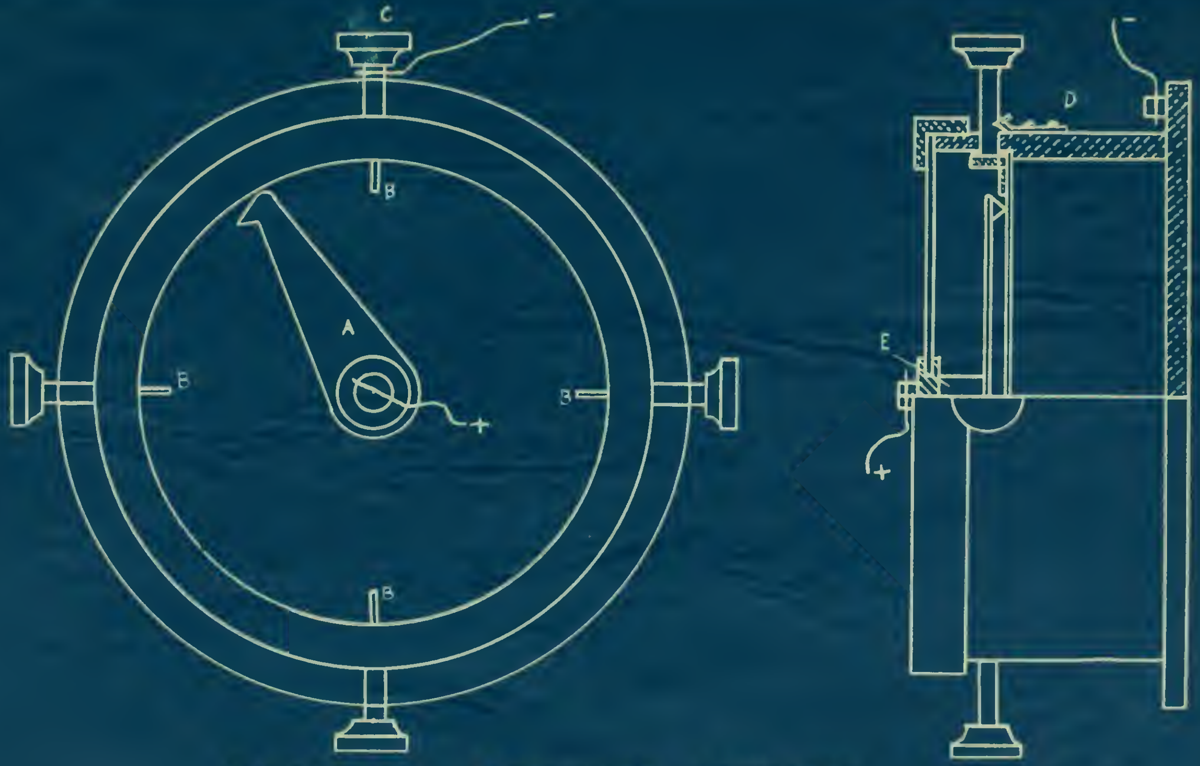
Figure 8

Chronometer.

By means of a chronometer which has a hand making one revolution per minute we are able to make and break the circuit of the revolution counters at set intervals of time so that if the revolutions are to be read for say one-half minute the mechanism can be so set and likewise for three quarters or full minute. Referring to Fig. IX. the hand (A) which rotates once per minute has a projecting point making contact with the brass terminals (B) These are connected by means of the plug (C) through the casing of the chronometer. They are also insulated from it so that connections can only be made by the plugs. The plugs (C) have either of two positions; one away in making contact between the terminals (B)

and the casing, and the other just in the casing. The plugs are held in either of these two positions by means of notches and springs, (D) on the casing. The hand (A) is in contact with a brush (E) which is connected to the other wire. Here we see that every time the hand (A) passes over a brass terminal (B) a circuit is made providing the plug (C) is pushed in to its second position. As the hand continues to rotate it will also make contact with the next terminal but no circuit will be made unless the plug is pushed in to its second position.

The terminals of the wires from the chronometer are connected to a solenoid shown in Fig. X.



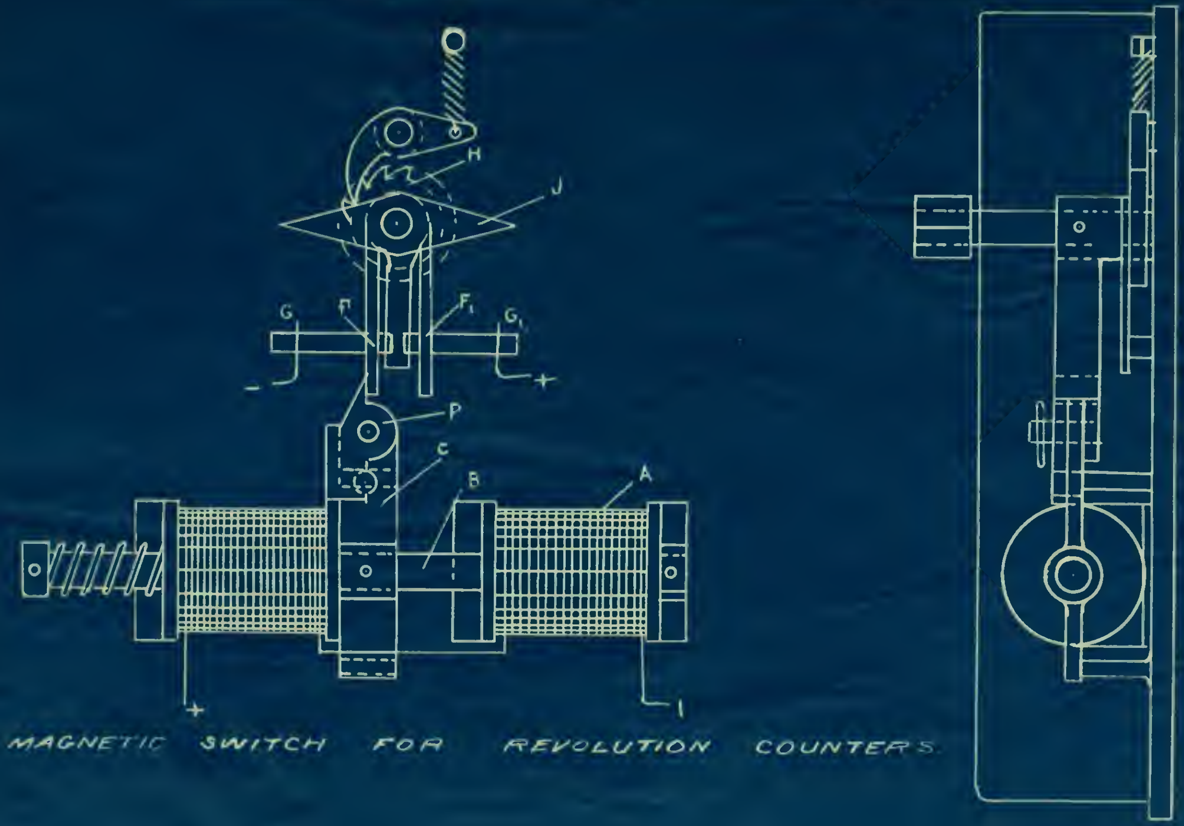
CLOCK FOR REVOLUTION COUNTERS.

Figure 9.

MAGNETIC SWITCH.

The mechanism here shown (Fig. X) is for the purpose of making and breaking the contact necessary to provide a circuit for the magnetic clutch of the revolution counters. The solenoid (A) is energized by means of the circuit made by the chronometer. Therefore, we see that every time the hand (A) Fig. IX. makes a circuit the solenoid is energized and the core (B) moves to the right. By means of the piece (C) which is rigidly connected to this core and the pall (P) mounted upon the lever (F) is moved providing it is in its path. Now suppose that the core (B) is moved to the right, it will carry with it the pall (P). By so doing it will break the contact between the brass terminals (G) and (O). Any movement of the core (B) after this

will not affect the position of the lever (F). While the lever is in the position shown in the figure a complete circuit is made with the megnetic clutch of the revolution counter . Therefore, while the pall (F) is in the position shown in Fig. IX. the revolution counters are in action immediately upon movement of the core (B) by means of the piece (C) the contact is broken. After this the pall will stay in the latter position no matter what the movement of the core (B) is. Now if the operator wishes to make a new set of readings he is obliged to turn the handle (J) almost through a complete revolution in order to get (F) so it can be acted upon by the next stroke of the core (B). When the first position of the pall (F) is made the core moves back and by means of the escapement pall (E) it comes in an acting

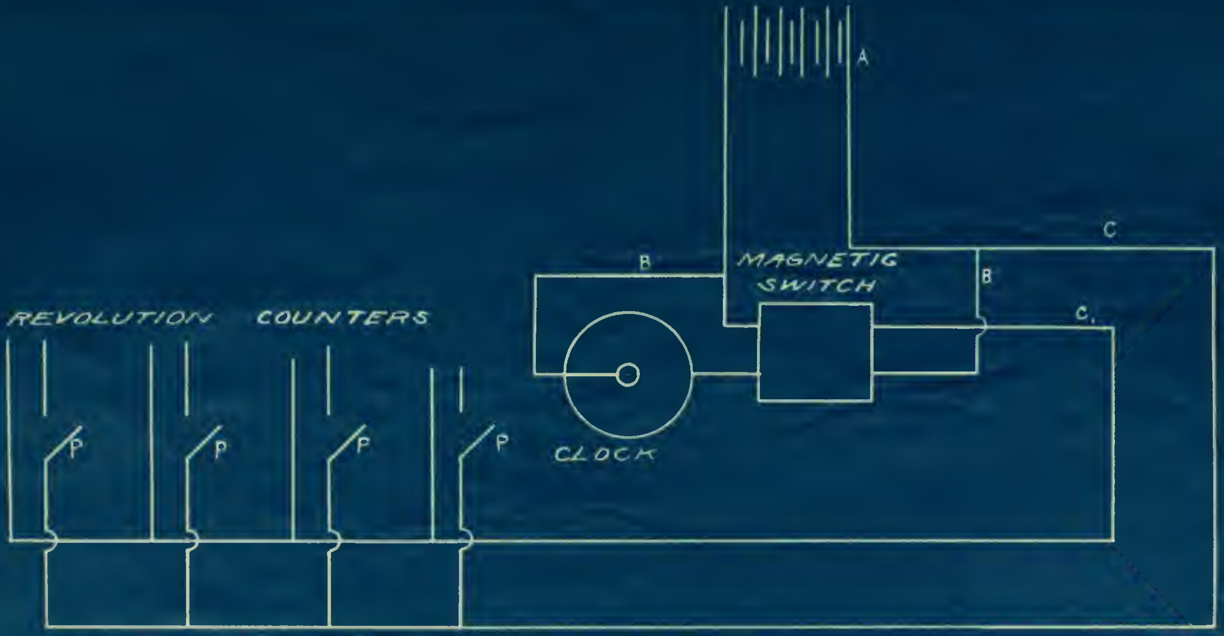


MAGNETIC SWITCH FOR REVOLUTION COUNTERS.

Figure 10.

position with regard to (F). By means of the pall and ratchet arrangement (H) any anti-clockwise rotation of the lever (F) is prohibited. The core (B) and pall (E) are brought back to their normal positions bymeans of springs shown in Fig. X. Also the throw of the solenoid is limited by various stops which are set in their proper positions.

Referring to Fig. XI. we have shown a digramatic arrangement of the wiring for the revolution·counter board (A) represents any source of electrc motive force. (B) and (B), are leads taken from this source and have in series with it the chronometer and the solenoid of the magnetic switch. Therefore, as the hand (A) of Fig. IX rotates and makes a complete circuit the solenoids are energized and if the lever (F) is in either



DIAGRAMATIC DETAIL OF WIREING FOR REVOLUTION COUNTER BOARD

Figure 11.

of its primary positions, it will be moved by the movement of the core (B). Here we see that the circuit is alternately made and borken by means of the chronometer and consequently the core (B) is moved to the left in time with the making of each circuit. Lines (C) and (C) come from the same source (A) and go to the revolutions counters. When the lever (F) of Fig. V. makes a circuit, the magnetic armatures of each individual revolution counter is magnetized as heretofore explained as all the revolution counters are in parallel. Any particular one not wished to be operated can be taken out of circuit by means of switch (D).

In Fig. XII. we have a general arrangement of the revolution counters, chronometer and magnetic switch upon a

GENERAL VIEW OF REVOLUTION COUNTER BOARD, CLOCK AND SWITCH.

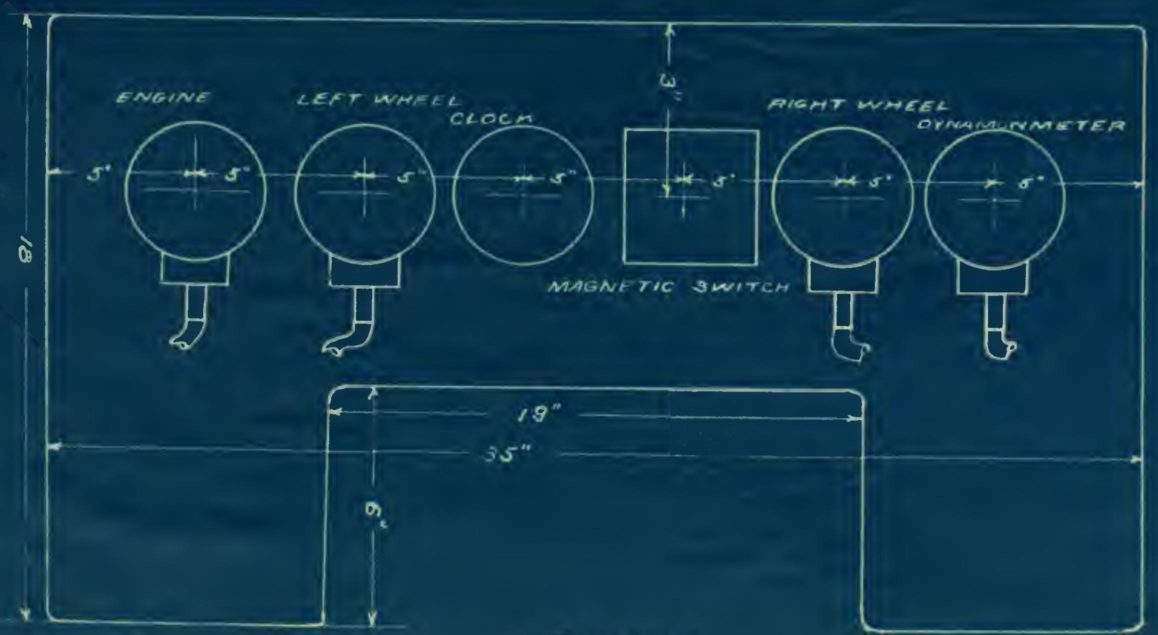


Figure 12.

board which is to be screwed to the dashboard of the chassis in full view of the operator of the car. From left to right the first revolution counter is connected to the circulating pump of the engine. This has a fixed gear ratio to the revolution of the crank shaft, by so arranging the train of gears in the revolution counter, it can be made to show the revolutions of the engine directly. The next counter goes to the left wheel and the next to the right. We have made two here because of the fact that there might be some slip between the tires and the belt, or, between the belt and the pulleys. By having a counter to each wheel this slippage will be shown. The last counter shows the revolutions of the dynamometer. The chronometer and magnetic switch are also placed upon this board so that we have

our full complement of revolution counters and speed indicating devices.

In the full sense of the word we have wrongly used words speed indicating devices but as the chronometer can be so set as to indicate the revolutions for one minute we have in reality a revolution counter which will give the R. P. M. and so we have used the words revolution counters and speed indicating devices interchangeably.

PART II.

The Construction of the Apparatus.

THE CONSTRUCTION OF THE APPARATUS.

THE TEST RACK.

Figure I shows three views of the test rack which was constructed and installed before this thesis was started. The base was made of 6"x8" yellow pine, the joints being dove tailed and held tight by means of bolts, The shaft hangers were obtained from a Chicago firm and were of pressed steel being both light and strong. These were bolted to the base means of 3/4" bolts which ran through the thickness of the material. The bearings with the shafts which were 1-15/16" diameter, were put in next and aligned. The pulleys were obtained from the same firm as the shaft hangers and were made of pressed steel, being 26" in diameter and

7" wide. These were put on the shafts as shown in the figure and were lined up so as to run true. To keep them from wearing against the hub, cast iron collars were placed on the shafts between the pulley hubs and the bearings. The belts, which were of rubbered canvas 6" wide were put on the pulleys and given enough sag to keep the car wheels from slipping. The brackets for keeping the car from moving sideways were forged from 1½x¼" steel rod and bolted to the base by means of lag screws. Where the ends of these brackets touched the brake drums on the car were put rubber buttons so that there would be no chattering and the paint would not wear off so fast. The strut over which the cable was hung was made of 2" pipe. Each end was threaded and on one was placed the steel sheave for the grooved pulley and on the

other was put the angle plate for fastening to the base. This was bolted to the base by means of lag screws. One end of the cable which was 3/8" diameter was run through a 3/8" hole in the frame of the car and a steel collar with a set screw was put on and tightened so that the cable could not pull out of the hole but was securely fastened to the car. The cable ran over the pulley and to the other end was babitted a cable clevis to which the 50 pound weights could be attached.

The standard upon which the front end of the car rested were adjustable and made in three parts. A three legged base was cast and a central hole drilled and threaded; onto this a 1½" screw was placed. This screw was 20" long and had a collar on the opposite end from the screw threads,

which was shaped so as to allow the axle of the car to set in a groove on it. The screw was free to turn without any motion of the top piece. By turning the screws out or in from the base the front end of the car could be raised or lowered.

The chains and springs for suspending the rear end of the car were obtained froma a manufacturing concern, and the turnbuckles and hooks in which the rear axle set, were made in the shops of the school.

THE ABSORPTION DYNAMOMETER.

Patterns for all parts of this were made in the pattern shops and the castings were made in the foundry of the school. The wedge rings and arm were made from steel forgings made in the forge shop? The disc was first turned on one side, bored and placed on an arbor after which it was finished to size. A keyway was cut and oil grooves cut radially on its face. The casings were turned on one side, bored out, placed on an arbor and finished in the same manner.

The brass bushings were turned up and fit to the casings. The wedge rings were next turned from the steel forging and were fit so that they could be driven in to make the joint between the diaphragm

and casing water tight. The diaphragms were made of copper and spun by a Chicago firm. These diaphragms were put on the casings, white lead being used in the joints and the wedge rings driven in. After each part wad fit the whole was put together and bolt holes drilled araround the circumference of the dynamometer. The holes for admitting water and discharging it were made and the arm was fit to the casing as a final proceeding. The shaft on which the dynamometer was to go was taken down and a keyway cut in it. While in the shop the dynamometer was put on the shaft and fit so it run smoothly. After everything was completed the shaft and dynamometer were put in the test rack, the shaft aligned and the dynamometer connected to the water line.

As a part of this thesis another dynamometer was made in which the bearings instead of being of brass were Hess-Bright ball bearings. This necessitated a slight change in the design of the casing which can be seen in Fig. IV. These bearings were fit to the casing with a push fit and held in place by four screws. This dynamometer was not put on the test rack but was intended to be used at some future time. It was made in the same way as the first one with the exception of the bearings.

THE EMERSON DYNAMOMETERS.

These will be obtained from an outside firm and made according to specifications? One was obtained but it could not be used on account of its not being the right size. One dynamometer is to go between the engine and transmission gearing on the drive shaft and the other is to go between the transmission gearing and the differential. This is shown is Fig. VII and VIII.

The shaft between the engine and transmission has a universal joint in it. This joint is an ordinary two pin knuckle joint, In order to put in the dynamometer this joint will be removed amd the couplings of the dynamometer keyed to the ends of the shaft as left by the removal

of the joint. The couplings will have to be made specially to fit the shafts as the latter come to a taper where the universal joint was fit. The arm of the dynamometer will be fastened to the inner frame of the car. The tube leading to the gauge will lead from one side of the dynamometer to the gaugeboard.

To put in the dynamometer between the transmission gearing and differential the torque tube covering the shaft will have to be cut. The shaft will be cut and the dynamometer couplings keyed to the two ends of the shaft. In order to not destroy the use of the torque tube the two sections left by the cutting of the tube can be connected and held rigid by two braces which span the dynamometer above and below To keep grease in the tube the ends can be

covered with a cap which has a clearance hole for the shaft.

The dynamometer arm can be fastened to a bracket which extends from the side of the frame. The gauge tube will lead from the side to the gauge board.

The dynamometers are 5" long and will be fit to 1 3/8" shafts on the car. The diameter of the widest part is 9". The arms may be any length as they simply hold the oil ring stationary.

Part III.

The Testing of the Car.

THE TESTING OF THE CAR.

We have arranged the apparatus so as to be able to find the various losses of power between the engine and wheels. These various losses consist of:

First- The loss shown by the efficiency of the engine.

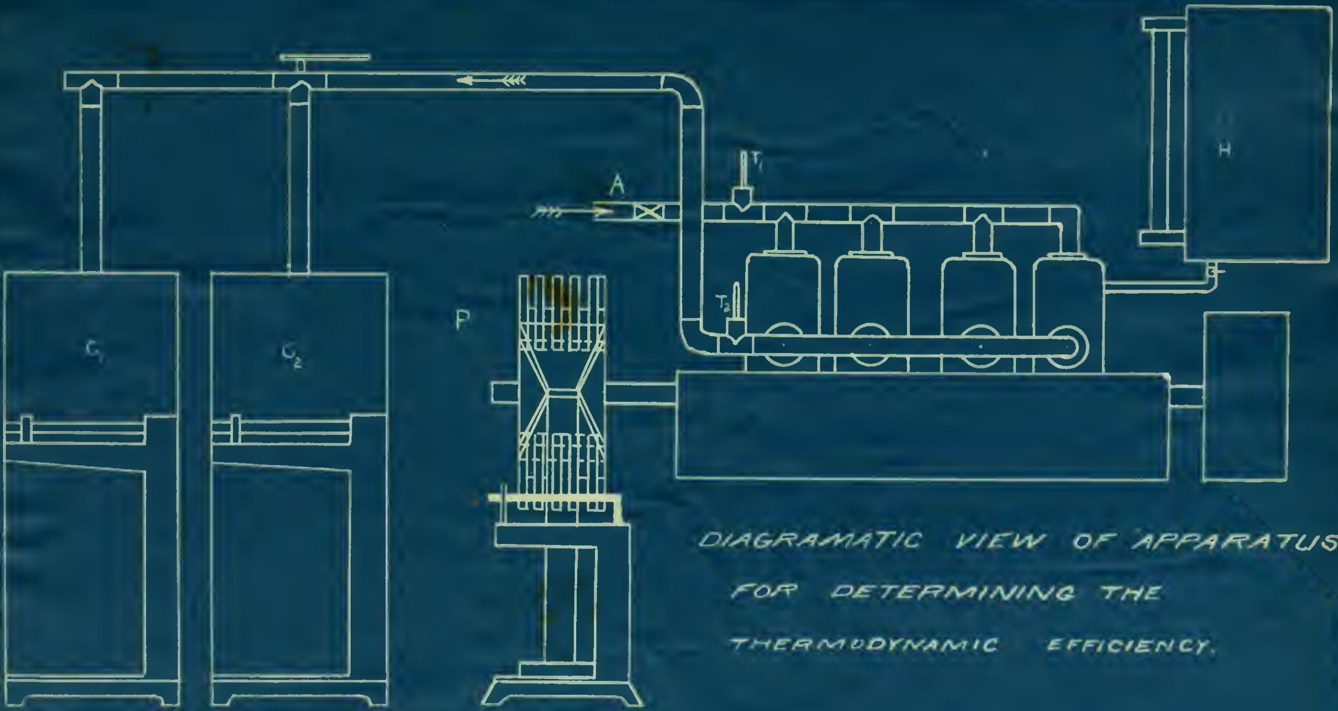
Second- Loss in the clutch.

Third- Loss in transmission gearing.

Fourth- Loss in differential.

Fifth- Loss of wheels upon the road.

To find the efficiency of the engine the apparatus may be arranged as shown in Fig. XIII. Referring to the figure which is a diagramatic sketch of the apparatus (A) is the inlet pipe for the cooling water (T_1) is a cup into which a thermometer is placed to take the inlet temperature and (T_2) gives the outlet tem-



DIAGRAMATIC VIEW OF APPARATUS
FOR DETERMINING THE
THERMODYNAMIC EFFICIENCY.

Figure 13.

perature. By means of weighing tanks (C_1) and (C_2) the pounds of water for cooling the engine can be determined. A prony brake (D) which is placed upon extension of the crank shaft gives the actual torque developed by the engine.

The calibrated gasoline tank (H) determines pounds of gasoline used to develope a cetain number of brake horse-power for a certain period of time. The revolution counters will give the speed of the engine.

The apparatus referred to is all that is necessary to dertermine the thermal and brake efficiency of the engine. The following is the necessary data to be taken for a complete test:

Time of starting.

Time of stopping.

Cooling water.

Temperature inlet.

Temperature outlet.

Tare weight on scales.

Total weight on scales.

Power of engine.

R. P. M.

Weight on scales.

Length of arm.

Calorific value of fuel.

After these items have been taken at stated intervals of time the efficiency can be calculated as follows:

ALL RESULTS WORKED OUT ON HOUR BASIS.

Heat in gasoline = lbs. gasoline
X calorific value of one pound fuel.

Heat given to cooling water = difference of temperature between inlet and outlet x lbs. of water used.

$$\text{Brake Horse-power} = \frac{2\,\pi\,L\,N\,P}{33000 \times 12}$$

L = length of arm in inches

N = R. P. M.

P = Weight on brake scales.

Thermal equivalent of work = 2545 x B.H.P.

$$\text{Theoretical efficiency} = 1-\left(\frac{V_c}{V_p}\right)^{1.405}$$

V_c= Compression volume.

V_p= Total volume of cylinder.

$$\text{Actual efficiency} = \frac{\text{heat equivalent of work}}{\text{heat in fuel}}$$

$$\text{Efficiency ratio} = \frac{\text{actual efficiency}}{\text{theoretical efficiency}}$$

After the efficiency of the engine has been found, the various other losses are determined.

KEMERSON DYNAMOMETER.

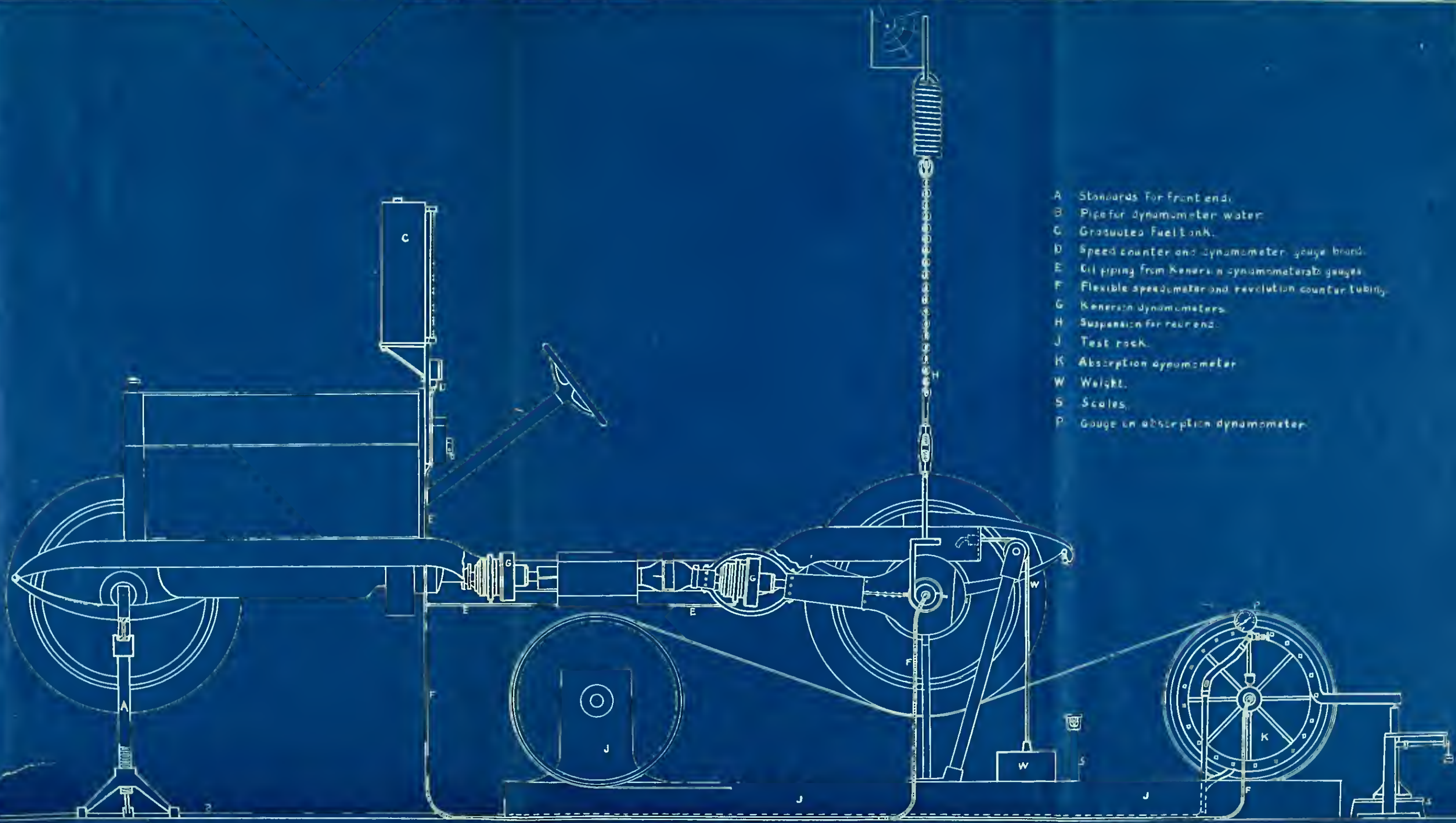
The first transmission dynamometer between clutch and transmission will give power transmitted to the transmission.

$$= \frac{\text{H.P. (dyn)}}{\text{B.H.P. (Engine)}}$$

gives efficiency of the clutch, by making various runs under different conditions, the efficiency can be calculated and curves plotted.

The next transmission dynamometer is after the transmission. The same formula will apply here for the efficiency of the transmission.

$$\frac{\text{H.P. }(\text{dyn}_2)}{\text{H.P. }(\text{dyn}_1)} = \text{efficiency of transmission.}$$


A Standards for front end.
B Pipe for dynamometer water.
C Graduated fuel tank.
D Speed counter and dynamometer gauge board.
E Oil piping from Kenerson dynamometers to gauges.
F Flexible speedometer and revolution counter tubing.
G Kenerson dynamometers.
H Suspension for rear end.
J Test rack.
K Absorption dynamometer.
W Weight.
S Scales.
P Gauge on absorption dynamometer.
C
D
E
G
G
E
E
F
H
F
W
W
S
J
J
J
J
K
P
F
A
B

Arrangement of the Apparatus.

Figure 14.

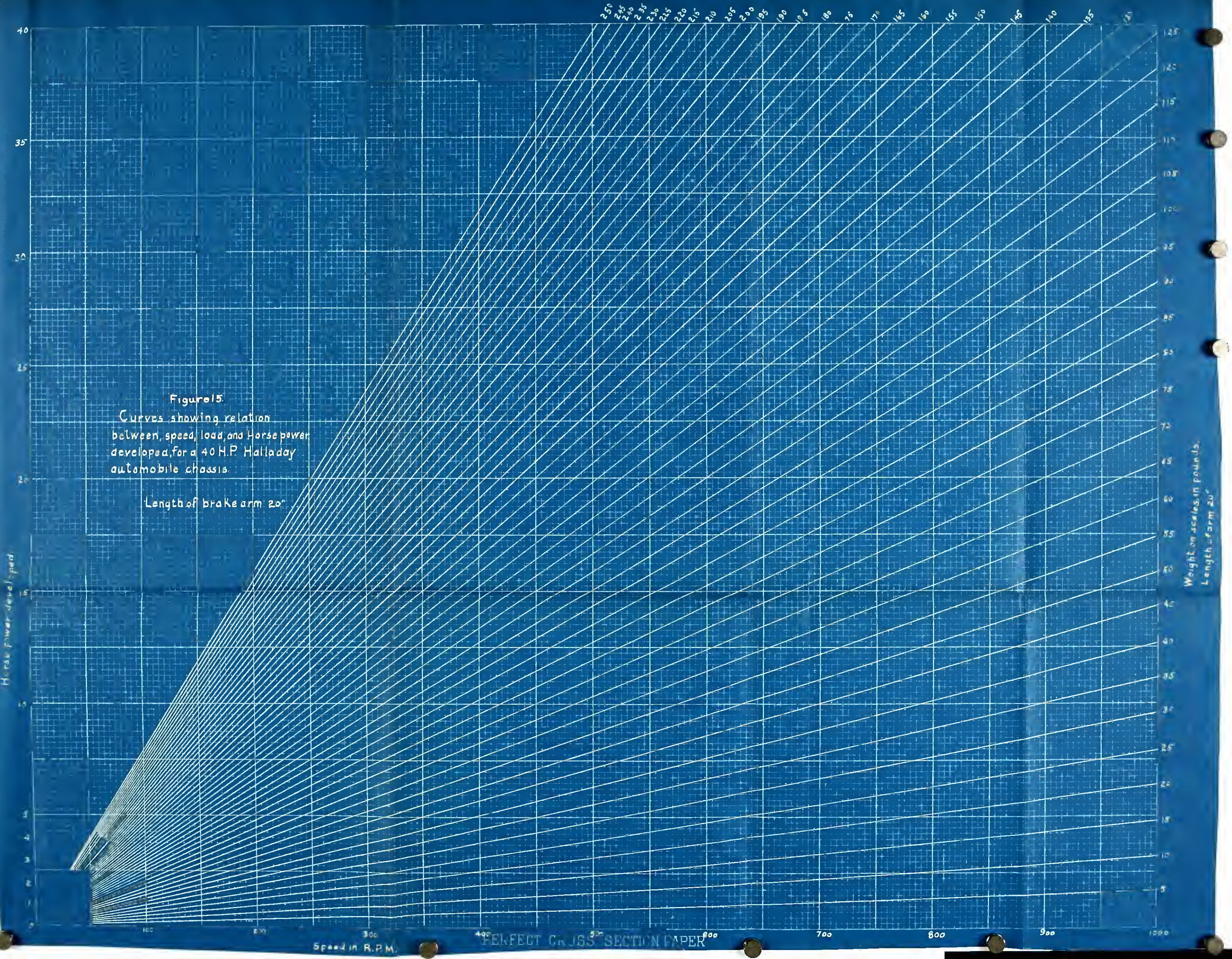


Figure 15.

Curves showing relation between, speed, load, and Horse power developed, for a 40 H.P. Halladay automobile chassis.

Length of brake arm 20"

CONCLUSION

In order to be complete, this thesis should have contained some data and results from tests of the car, but owing to the lateness at which the work of contruction of the apparatus was started, and the fact that so much dependency was put on outside parties to supply apparatus, no test could be made. It was intended to run the car attached to the absorption dynamometer so that the horsepower and tractive effort of the car could be found, but so much trouble was made in getting the engine to run properly that the testing was given up.

The Automobiles at the Garden

PRESENTING IN TABULAR FORM WITH TYPICAL ILLUSTRATIONS THE MAKES AND MODELS OF AUTOMOBILES THAT WILL BE SHOWN AT THE GARDEN IN NEW YORK CITY

PATRONS of the automobile industry who will be interested in the exhibitions of cars as they will be presented at the Garden Show in New York City, will find it extremely difficult to avoid confusion unless some system is contrived by means of which they will be permitted to pursue their investigations on a pre-determined basis. The 67 separate makes of gasoline passenger automobiles that are to be shown at the Garden will include 468 separate models of cars, the details of which are presented in the accompanying tabulation. The form of the table has been made as simple as possible in order not to present the disadvantage which would accompany an intricate arrangement involving technical details which cannot possibly be of utility to a purchaser. The first column gives the name of the maker and the models of each make, arranged in alphabetical order. The second column is reserved for the price which is being asked for each model of the respective makes of automobiles. The third column refers to the horsepower rating based upon the A. L. A. M. formula. In explanation of this horsepower comparison it will be proper to say that the makers' ratings, in each case, may be more, or less, than that as given by the A. L. A. M. formula, and it is also true that the respective makers are justified in departing from the formula since they may, by test, ascertain exactly what their motors will deliver in the matter of power, whereas the A. L. A. M. rating, so-called, serves as a mere means of comparison from the displacement point of view, based upon a piston speed of 1,000 feet per minute.

The types of bodies are given in the table for the various models, and the seating capacity is stated. For the purpose of indicating the characteristics in body work of the several makers, at least one model of each make is presented in halftone work, the illustration being placed as nearly as possible adjacent to the position occupied by the data of the maker in the tabulation. Passing on to the motor, the cylinder dimensions, how they are cast, and the number thereof, are stated, after which the cooling question is stated, giving the type of radiator and the method of water circulation. Then comes the ignition systems, stating the types of ignition employed on the respective motors, and indicating the kind of battery used in the auxiliary ignition system. The questions of lubrication are then taken up, after which the type of clutch used in each case is stated, and in logical order the tabulation passes on to the transmission, giving just the information that the purchaser will require, including the type of transmission gear employed, the number of speeds, whether selective, or progressive, and thereafter the plan of drive is given, as shaft, or side chain, as the case may be.

The wheelbase and tread are stated in inches, and the kind of bearings employed in the crankshafts of the motors, transmissions and axles, are indicated as plain, ball or roller, and passing on to the column of weight in relation to which there is some uncertainty, and in quite a few of the models figures are left out, it being the case that the weight will vary with the type of body employed, and in some instances the cars are being completed in order that they will be ready to be shown, for the first time, at the Garden, so that the weights are really not known. The tabulation ends with a statement of the sizes of tires used on the front and rear wheels of the cars tabulated.

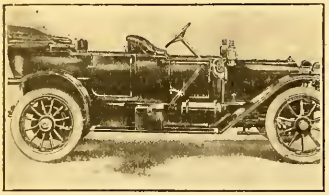
There are no doubt a good many other points that intending purchasers will want to investigate, but it is highly improbable that a mere statement in relation to them would answer any useful purpose, and the great question after all is to avoid complication, and make each effort tell for something. The table as a whole has a statistical value that might be worked out to an extreme point, but even this question, if it is carried too far, would have its end defeated, so that the statistics of the cars, with a view to simplicity, will be limited to the statement as follows:

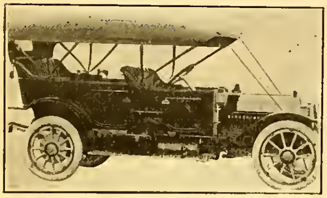
Statistical Information of the Cars at the Garden

Number of water-cooled motors	450
Number of air-cooled motors	12
Number of six-cylinder motors	87
Number of four-cylinder motors	364
Number of two-cylinder motors	8
Number of one-cylinder motors	1
Number with cylinders cast individually	83
Number with cylinders cast in pairs	312
Number with cylinders cast en bloc	61
Number with integral water jackets	460
Number with separable water jackets	2
Number with separable cylinder heads	1
Number with integral cylinder heads	461
Number with thermo-syphon cooling system	49
Number using a centrifugal pump for water circulation	356
Number with gear pump for water circulation	53
Number with high-tension magnetos	430
Number with low-tension magnetos	13
Number with two-speed selective transmissions	6
Number with three-speed selective transmissions	278
Number with four-speed selective transmissions	143
Number with three-speed progressive transmissions	4
Number with four-speed progressive transmissions	none
Number with semi-progressive transmissions	none
Number with planetary gears	16
Number with friction drives	19
Number with pressed steel side frames	382
Number with wooden side frames	12
Number with plain bearing crankshafts	418
Number with ball-bearing crankshafts	43
Number with roller-bearing crankshaft	6
Number with side-chain drives	36
Number with shaft drives	430
Approximate average price of the cars	$1645.93

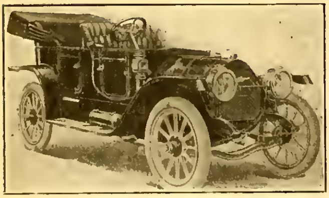
The embryo automobilist may get the impression that mere mass of statistical data bearing upon some one phase of the designing problem would be a sufficient indication of the fact that all automobiles should be built that way, but it is highly improbable that any reasoning along such lines will be sound. There are good grounds, for instance, why some transmission gears should have four speeds, although the majority of them are three speed selective systems, and the only real question that can come up in connection with this matter is that involving the desirability of ultimately arriving at a standard, but there are none so skilled in the automobile art at the present time as to be able to sit upon the judgment pedestal and carry conviction in any one direction. There is just as much chance that the automobile of the future will be an advance on the cars of to-day as may be measured by a comparison of the modes of transportation that served more or less satisfactorily the people of a thousand years ago with those of the present time. Of one thing we may be sure, the automobile as it will appear in 191 is being whipped into such stable form and is so thoroughly representative of the best ideas of the day that any changes which may creep in will be slow and evolutionary in character, taking years, perhaps, to bring about a noticeable change.

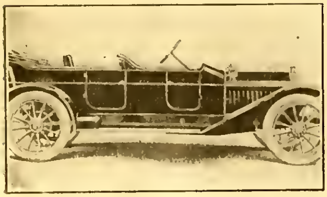
Details of Passenger Automobile


American Tourist 7-passenger touring


Amplex fore-door 7-passenger touring

Alco 40 H. P. Limousine


Apperson 4-30 fore-door touring


Atlas Model "O" touring car

MAKE AND MODEL	Price	H.P.A.L.A.M.	BODY		MOTOR				COOLING		IGNITION		L[illegible]tion
			Type	Seats	Cyl.	Bore Inches	Stroke Inches	Cyl. Cast	Radi-ator	Pump	Mag-neto	Battery	
American Roadster....	$4250	46.2	R'ster..	2	4	5⅜	5½	Pairs..	Tubular.	Cent 'fl	H. T...	Storage	Pum
American R'ster Spec..	5000	52.9	Racy...	2	4	5¾	5½	Pairs..	Tubular.	Cent 'fl	H. T....	Storage	Pum
American R'ster Coupe	5250	46.2	Coupe..	2	4	5⅜	5½	Pairs..	Tubular.	Cent 'fl	H. T....	Storage	Pum
American Speedster....	5000	52.9	S'p't'r[1]	2	4	5¾	5½	Pairs..	Tubular.	Cent 'fl	H. T...	Storage	Pum
American Traveler....	4250	46.2	Tour'g..	5	4	5⅜	5½	Pairs..	Tubular.	Cent 'fl	H. T...	Storage	Pum
American Tr'ler Spec..	5000	52.9	Town...	5	4	5¾	5½	Pairs..	Tubular.	Cent 'fl	H. T...	Storage	Pum
American Tr'ler Coupe.	5250	46.2	Coupe[1].	4	4	5⅜	5½	Pairs..	Tubular.	Cent 'fl	H. T...	Storage	Pum
American Tourist.....	4250	46.2	Tour'g[1].	7	4	5⅜	5½	Pairs..	Tubular.	Cent 'fl	H. T....	Storage	Pum
American Limousine....	5250	46.2	Limous.	7	4	5⅜	5½	Pairs..	Tubular.	Cent 'fl	H. T....	Storage	Pum
Amplex H...........	4300	41.0	F.d Tg..	7	4	5 1/16	5	Pairs..	H'comb..	Cent 'fl	H. T...	Ajax...	Mech
Amplex H...........	4300	41.0	B. ton..	5	4	5 1/16	5	Pairs..	H'comb..	Cent 'fl	H. T...	Ajax...	Mech
Amplex H...........	4300	41.0	R'ster..	2	4	5 1/16	5	Pairs..	H'comb..	Cent 'fl	H. T...	Ajax...	Mech
Amplex H...........	5650	41.0	Limous.	7	4	5 1/16	5	Pairs..	H'comb..	Cent 'fl	H. T...	Ajax...	Mech
Alco 15-40..........	4500	42.0	Tour'g..	7	4	5⅛	5½	Pairs..	H'comb..	Cent 'fl	H. T...	Storage	Pum
Alco 6-60..........	6000	54.1	Tour'g..	7	6	4¾	5½	Pairs..	H'comb..	Cent 'fl	H. T...	Storage	Pum
Apperson—													
Jack Rabbit 4-30....	2000	32.4	Tour'g..	5	4	4½	5	Single.	Tubular.	Ro'ry.	H. T...	Storage	Pum
Jack Rabbit 4-40....	3000	36.1	Tour'g..	7	4	4¾	5	Single.	Tubular.	Ro'ry.	H. T...	Storage	Pum
Jack Rabbit 4-50....	4000	48.4	Tour'g..	7	4	5½	5	Single.	Tubular.	Ro'ry.	H. T...	Storage	Pum
Jack Rabbit 4-70....	4200	53.0	S.Rac'g	2	4	5¾	5¾	Single.	Tubular.	Ro'ry.	H. T...	Storage	Pum
Atlas K.............	2400	16.2	Tax....	3	2	4½	4½	Pairs..	Tubular.	Cent 'fl	H. T...	Dry....	Splas
Atlas M.............	2400	32.4	Tour'g..	7	4	4½	4½	Pairs..	Tubular.	Cent 'fl	H. T...	Dry....	Splas
Atlas O.............	2400	32.4	Tour'g..	5	4	4½	4½	Pairs..	Tubular.	Cent 'fl	H. T...	Dry....	Splas
Atlas O.............	2400	32.4	F.d.Tg..	7	4	4½	4½	Pairs..	Tubular.	Cent 'fl	H. T...	Dry....	Splas
Atlas O.............	2400	32.4	F.d.Tg..	7	4	4½	4½	Pairs..	Cellular..	Cent 'fl	H. T...	Dry....	Splas
Autocar XXIV........	2250	30.6	Tour'g..	5	4	4⅜	4½	Pairs..	Tubular.	Cent 'fl	H. T...	Dry....	F. fee
Autocar XXIV........	2250	30.6	R'ster..	3	4	4⅜	4½	Pairs..	Tubular.	Cent 'fl	H. T...	Dry....	F. fee
Brush E.............	485	6.4	R'bout.	2	1	4	5	Block.	H'comb..	Syph'n	[2]H.T...	Dry....	Splas
Buick 21............	1500	28.9	Tour'g..	5	4	4¼	4½	Pairs..	Tubular.	Cent 'fl	H. T...	Dry....	Pum
Buick 21............	1500	28.9	D. ton..	4	4	4¼	4½	Pairs..	Tubular.	Cent 'fl	H. T...	Dry....	Pum
Buick 26............	1050	25.6	R'ster..	2	4	4	4	Pairs..	Tubular.	Cent 'fl	H. T...	Dry....	Pum
Buick 27............	1150	25.6	Tour'g..	5	4	4	4	Pairs..	Tubular.	Cent 'fl	H. T...	Dry....	Pum
Buick 32............	800	22.5	R'ster..	2	4	3¾	3¾	Pairs..	H'comb..	Cent 'fl	H. T...	Dry....	Pum
Buick 33............	950	22.5	C.c.ton.	4	4	3¾	3¾	Pairs..	H'comb..	Cent 'fl	H. T...	Dry....	Pum
Buick 38............	1850	32.4	R'ster..	2	4	4½	5	Pairs..	Tubular.	Cent 'fl	H. T...	Dry....	Pum
Buick 39............	1850	32.4	F.d.Tg..	5	4	4½	5	Pairs..	Tubular.	Cent 'fl	H. T...	Dry....	Pum
Cadillac "Thirty".....	1700	32.4	Tou'g..	5	4	4½	4½	Single.	Tubular.	Cent 'fl	H. T...	Delco...	Splas
Cadillac "Thirty".....	1700	32.4	D. Ton.	4	4	4½	4½	Single.	Tubular.	Cent 'fl	H. T...	Delco...	Splas
Cadillac "Thirty".....	1700	32.4	R'ster..	3	4	4½	4½	Single.	Tubular.	Cent 'fl	H. T...	Delco...	Splas
Cadillac "Thirty".....	1800	32.4	F.d Tg..	5	4	4½	4½	Single.	Tubular.	Cent 'fl	H. T...	Delco...	Splas
Cadillac "Thirty".....	1850	32.4	Torp'o..	4	4	4½	4½	Single.	Tubular.	Cent 'fl	H. T...	Delco...	Splas
Cadillac "Thirty".....	2250	32.4	Coupe..	3	4	4½	4½	Single.	Tubular.	Cent 'fl	H. T...	Delco...	Splas
Cadillac "Thirty"	3000	32.4	Limous.	7	4	4½	4½	Single.	Tubular.	Cent 'fl	H. T...	Delco...	Splas
Cartercar L..........	1600	28.9	Tour'g..	5	4	4¼	4½	Pairs..	Tubular.	Cent 'fl	H. T...	Dry....	Pum
Cartercar L..........	1650	28.9	D. ton..	5	4	4¼	4½	Pairs..	Tubular.	Cent 'fl	H. T...	Dry....	Pum
Cartercar H.	1150	25.6	Min.to..	5	4	4	4	Pairs..	Tubular.	Syph'n	H. T...	Dry....	Pum
Cartercar H..........	1150	25.6	R'bout.	4	4	4	4	Pairs..	Tubular.	Syph'n	H. T...	Dry....	Pum
Cartercar H..........	1125	25.6	Dr. Rt..	4	4	4	4	Pairs..	Tubular.	Syph'n	H. T...	Dry....	Pum
Cartercar H..........	1100	25.6	R'bout.	3	4	4	4	Pairs..	Tubular.	Syph'n	H. T...	Dry.....	Pum
Cartercar H..........	1075	25.6	R'bout.	2	4	4	4	Pairs..	Tubular.	Syph'n	H. T...	Dry....	Pum
Cartercar H..........	1050	25.6	R'bout.	2	4	4	4	Pairs..	Tubular.	Syph'n	H. T...	Dry....	Pum
Cartercar T..........	1350	16.2	Panel...	..	2	4½	4½	Single	Cellular..	Syph'n	H. T...	Dry....	Pum
Cartercar T..........	1250	16.2	Open...	..	2	4½	4½	Single.	Cellular .	Syph'n	H. T...	Dry....	Pum

[1] Fore-door type

AMERICAN—American Motor Car Co., Indianapolis, Ind.
AMPLEX—Simplex Motor Car Co., Mishawaka, Ind.
ALCO—American Locomotive Co., 1886 Broadway, New York.
APPERSON—Apperson Bros. Automobile Co., Kokomo, Ind.
ATLAS—Atlas Motor Car Co., Springfield, Mass.

The illustrations selected of the automobiles as here tabulated are intended to convey a good general impression on a somewhat comparative basis of the models that will be on exhibition at the Garden, among which are to be found a considerable number of fore-door types of touring cars, with here and there an example of a limousine, just a few standard types of touring cars, and a sprinkling of runabouts, the idea being to convey a fair representation of the trend in body designs. In the tabulations it will be found that the horsepower ratings are not those of the makers, but for the purpose of comparison

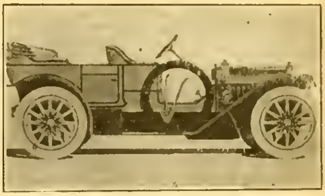
on the American Market for 1911

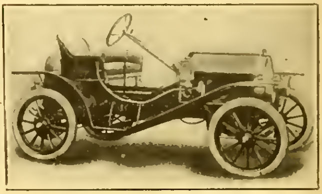
ch	TRANSMISSION				Wheelbase	Tread	Frame	BEARINGS			Weight	TIRES	
	Type	Speeds	Loca-tion	Drive				Crank-shaft	Trans-mis'n	Axle		Front	Rear
one	Sel.	4	Unit	Shaft	112	56	P. Steel	3 Plain	Ball	Ball	2900	40x4	40x4
one	Sel.	4	Unit	Shaft	112	56	P. Steel	3 Plain	Ball	Ball	2600	36x4	36x5
one	Sel.	4	Unit	Shaft	112	56	P. Steel	3 Plain	Ball	Ball	3600	40x4	40x4
one	Sel.	4	Unit	Shaft	112	56	P. Steel	3 Plain	Ball	Ball	3600	36x4	36x5
one	Sel.	4	Unit	Shaft	124	56	P. Steel	3 Plain	Ball	Ball	3200	40x4	40x4
one	Sel.	4	Unit	Shaft	124	56	P. Steel	3 Plain	Ball	Ball	3200	40x4	40x4
one	Sel.	4	Unit	Shaft	124	56	P. Steel	3 Plain	Ball	Ball	3600	40x4	40x4
one	Sel.	4	Unit	Shaft	124	56	P. Steel	3 Plain	Ball	Ball	3200	36x4	36x5
one	Sel.	4	Unit	Shaft	124	56	P. Steel	3 Plain	Ball	Ball	3600	36x4	36x5
isc	Sel.	3	Axle	Shaft	128	56½	P. Steel	Plain	Ball	Ball	4000	36x4	36x5
isc	Sel.	3	Axle	Shaft	128	56½	P. Steel	Plain	Ball	Ball	4000	36x4	36x5
isc	Sel.	3	Axle	Shaft	128	56½	P. Steel	Plain	Ball	Ball	4000	36x4	36x5
isc	Sel.	3	Axle	Shaft	128	56½	P. Steel	Plain	Ball	Ball	4000	36x4	36x5
. disc	Sel.	4	Unit	Shaft	126	55½	P. Steel	Plain	Ball	Ball	3900	36x4	36x5
. disc	Sel.	4	Unit	Shaft	134	55½	P. Steel	Plain	Ball	Ball	4200	36x4	36x5
on.b'd	Sel.	3	Unit	Shaft	114	56	P. Steel	Plain	Ball	Ball	2750	34x4	34x4
on.b'd	Sel.	3	Unit	Shaft	122	56	P. Steel	Plain	Ball	Ball	3000	36x4	36x4½
on.b'd	Sel.	4	Unit	Shaft	127	56	P. Steel	Plain	Ball	Ball	3600	36x4½	36x5
on.b'd	Sel.	3	Unit	2 Chain	116	56	P. Steel	Plain	Ball	Ball	2400	34x4	34x4½
late	Sel.	3	Motor	Shaft	106	56	P. Steel	Roller	Roller	Roller	1600	32x3½	32x3½
late	Sel.	3	Motor	Shaft	120	56	P. Steel	Roller	Roller	Roller	2400	36x4	36x4
late	Sel.	3	Motor	Shaft	120	56	P. Steel	Roller	Roller	Roller	2400	36x4	36x4
late	Sel.	3	Motor	Shaft	120	56	P. Steel	Roller	Roller	Roller	2400	36x4	36x4
late	Sel.	3	Unit	Shaft	120	56	P. Steel	Roller	Roller	Roller	2400	36x4	36x4
isc	Sel.	3	Unit	Shaft	117	56	P. Steel	Plain	Roller	Roller	2600	36x4½	36x4½
isc	Sel.	3	Unit	Shaft	117	56	P. Steel	Plain	Roller	Roller	2600	36x4½	36x4½
. Disc	Plane	2	Unit	2 Chain	80	54½	Wood	2 Plain	B.&Pl.	Ball	.....	28x3	28x3
one	Sel.	3	Unit	Shaft	110	56	P. Steel	Plain	Ball	Ball	.....	34x4	34x4
one	Sel.	3	Unit	Shaft	110	56	P. Steel	Plain	Ball	Ball	.....	34x4	34x4
. Disc	Sel.	3	Unit	Shaft	100	56	P. Steel	Plain	Ball	Ball	.....	32x3½	32x3½
. Disc	Sel.	3	Unit	Shaft	106	56	P. Steel	Plain	Ball	Ball	.....	32x3½	32x3½
one	Plane	2	Unit	Shaft	90	56	P. Steel	Plain	Ball	Ball	.....	30x3½	30x3½
one	Plane	2	Unit	Shaft	100	56	P. Steel	Plain	Ball	Ball	.....	30x3½	30x3½
. Disc	Sel.	3	Unit	Shaft	116	56	P. Steel	Plain	Ball	Ball	.....	36x4	36x4
. Disc	Sel.	3	Unit	Shaft	116	56	P. Steel	Plain	Ball	Ball	.....	36x4	36x4
one	Sel.	3	Unit	Shaft	116	56	P. Steel	Plain	Ball	Roller	.....	34x4	34x4
one	Sel.	3	Unit	Shaft	116	56	P. Steel	Plain	Ball	Roller	.....	34x4	34x4
one	Sel.	3	Unit	Shaft	116	56	P. Steel	Plain	Ball	Roller	.....	34x4	34x4
one	Sel.	3	Unit	Shaft	116	56	P. Steel	Plain	Ball	Roller	.....	34x4	34x4
one	Sel.	3	Unit	Shaft	116	56	P. Steel	Plain	Ball	Roller	.....	34x4	34x4
one	Sel.	3	Unit	Shaft	116	56	P. Steel	Plain	Ball	Roller	.....	34x4	34x4
one	Sel.	3	Unit	Shaft	116	56	P. Steel	Plain	Ball	Roller	.....	36x4½	36x4½
one	Frict'n	...	Unit	2 Chain	110	56	P. Steel	3 Plain	Ball	Ball	.....	34x4	34x4
one	Frict'n	...	Unit	2 Chain	110	56	P. Steel	3 Plain	Ball	Ball	.....	34x4	34x4
one	Frict'n	...	Unit	2 Chain	110	56	P. Steel	3 Plain	Ball	Ball	.....	32x3½	32x3½
one	Frict'n	...	Unit	2 Chain	110	56	P. Steel	3 Plain	Ball	Ball	.....	32x3½	32x3½
one	Frict'n	..	Unit	2 Chain	110	56	P. Steel	3 Plain	Ball	Ball	.....	32x3½	32x3½
one	Frict'n	...	Unit	2 Chain	110	56	P. Steel	3 Plain	Ball	Ball	.....	32x3½	32x3½
one	Frict'n	...	Unit	2 Chain	110	56	P. Steel	3 Plain	Ball	Ball	.....	32x3½	32x3½
one	Frict'n	...	Unit	2 Chain	110	56	P. Steel	3 Plain	Ball	Ball	.....	32x3½	32x3½
one	Frict'n	...	Unit	2 Chain	98	56	P. Steel	3 Plain	Ball	Ball	.....	34x2½	36x2½
one	Frict'n	...	Unit	2 Chain	98	56	P. Steel	3 Plain	Ball	Ball	.....	34x2½	36x2½

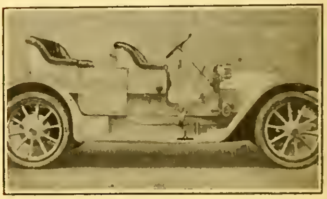
¶Extra

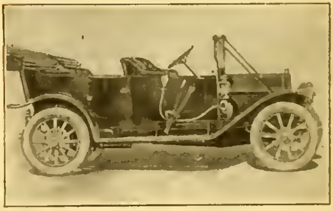
AUTOCAR—Autocar Co., Ardmore, Pa.
BRUSH—Brush Runabout Co., Detroit, Mich.
BUICK—Buick Motor Co., Flint, Mich.
CADILLAC—Cadillac Motor Car Co., Detroit, Mich.
CARTERCAR—Cartercar Co., Pontiac, Mich.

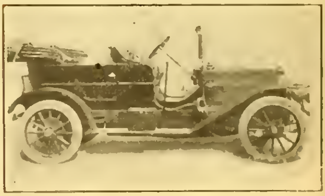
on a common basis the A. L. A. M. ratings are given. This should not be taken as license to disregard the horsepower ratings of the respective makers; the mere fact that the A. L. A. M. ratings may be above or below the maker's ratings possesses no significance; the respective makers may be quite right in their statements, but it is a convenience to be able to compare displacements of motors, if only it is remembered that the horsepower of a motor is not settled by the displacement, although it has a bearing upon the power that can be taken from a motor.

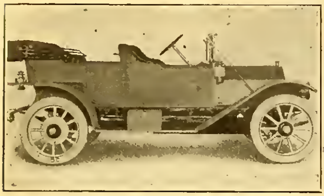

Autocar "30" 5-passenger touring


Brush Model "D" runabout

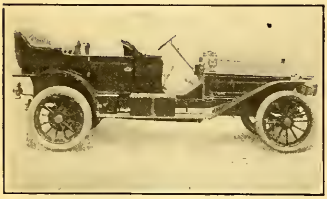

Acme S. G. V. 5-passenger touring


Cadillac "30" fore door car

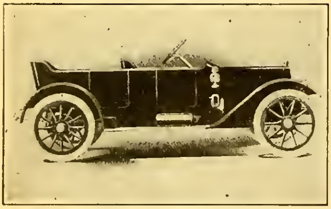

Cartercar 5-pasenger touring car



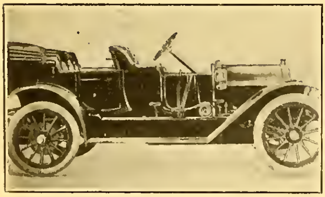
Case fore-door touring car



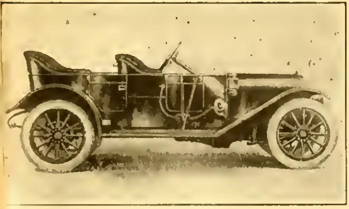
Chadwick 7-passenger touring car



Chalmers "40" with torpedo body



Columbia 7-passenger vestibule touring car



Model "30" Corbin touring car of the fore-door type

Details of Passenger Automobiles

MAKE AND MODEL	Price	H.P.A.L.A.M.	BODY		MOTOR				COOLING		IGNITION		Lubrication
			Type	Seats	Cyl.	Bore Inches	Stroke Inches	Cyl. Cast	Radiator	Pump	Magneto	Battery	
Case K	.....	28.9	Torp'o.	4	4	$4\frac{1}{4}$	5	Pairs..	H'comb..	Cent 'fl	None...	Dry....	Splash..
Case K	.....	28.9	Tour'g..	5	4	$4\frac{1}{4}$	5	Pairs..	H'comb..	Cent 'fl	None...	Dry....	Splash..
Case K	.....	28.9	S'bur'n.	4	4	$4\frac{1}{4}$	5	Pairs..	H'comb..	Cent 'fl	None...	Dry....	Splash.
Chadwick	$5500	60.0	Tour'g.	7	6	5	6	Pairs..	Tubular.	Cent 'fl	H. T...	Storage	Pump..
Chadwick	5500	60.0	T'b't....	5	6	5	6	Pairs..	Tubular.	Cent 'fl	H. T...	Storage	Pump..
Chadwick	5500	60.0	R'bout.	3	6	5	6	Pairs..	Tubular.	Cent 'fl	H. T...	Storage	Pump..
Chadwick	6500	60.0	Limous.	7	6	5	6	Pairs..	Tubular.	Cent 'fl	H. T...	Storage	Pump..
Chalmers "30"	1500	25.6	Tour'g..	5	4	4	$4\frac{3}{4}$	Block.	Tubular.	Cent 'fl	H. T...	Storage	Splash .
Chalmers "30"	1500	25.6	R'ster..	2	4	4	$4\frac{3}{4}$	Block.	Tubular.	Cent 'fl	H. T...	Storage	Splash..
Chalmers "30"	1600	25.6	P. ton..	4	4	4	$4\frac{3}{4}$	Block.	Tubular.	Cent 'fl	H. T...	Storage	Splash..
Chalmers "30"	3000	25.6	Limous.	5	4	4	$4\frac{3}{4}$	Block.	Tubular.	Cent 'fl	H. T...	Storage	Splash.
Chalmers "30"	2400	25.6	Coupe..	3	4	4	$4\frac{3}{4}$	Block.	Tubular.	Cent 'fl	H. T...	Storage	Splash.
Chalmers "40"	2750	40 0	Tour'g..	7	4	5	$4\frac{3}{4}$	Pairs..	Cellular..	Cent 'fl	H. T...	Storage	Splash.
Chalmers "40"	2750	40.0	R'ster..	5	4	5	$4\frac{3}{4}$	Pairs..	Cellular..	Cent 'fl	H. T...	Storage	Splash..
Chalmers "40"	3000	40.0	Torp'o..	4	4	5	$4\frac{3}{4}$	Pairs..	Cellular..	Cent 'fl	H. T...	Storage	Splash..
Columbia Mark 85	3300	38.0	R.ster..	4	4	$4\frac{7}{8}$	$5\frac{1}{2}$	Pairs..	Cellular..	Cent 'fl	H. T...	Dry....	Pump..
Columbia Mark 85	3400	38.0	R'ster..	6	4	$4\frac{7}{8}$	$5\frac{1}{2}$	Pairs..	Cellular..	Cent 'fl	H. T ..	Dry....	Pump..
Columbia Mark 85	3500	38.0	Tour'g..	7	4	$4\frac{7}{8}$	$5\frac{1}{2}$	Pairs..	Cellular..	Cent 'fl	H. T...	Dry....	Pump..
Columbia Mark 85	4800	38.0	Limous.	7	4	$4\frac{7}{8}$	$5\frac{1}{2}$	Pairs..	Cellular..	Cent 'fl	H. T...	Dry....	Pump..
Columbia Mark 48-Lot5	2750	32.0	Tour'g..	5	4	$4\frac{1}{2}$	4.7	Pairs..	Cellular..	Cent 'fl	L. T....	Dry....	Pump..
Columbia Mark 48-Lot5	3000	32.0	Tour'g..	7	4	$4\frac{1}{2}$	4.7	Pairs..	Cellular..	Cent 'fl	L. T...	Dry....	Pump.
Columbia Mark 48-Lot5	3800	32.0	Land't..	7	4	$4\frac{1}{2}$	4.7	Pairs..	Cellular..	Cent 'fl	L. T....	Dry....	Pump.
Corbin 18	2750	32.4	Tour'g..	5	4	$4\frac{1}{2}$	$4\frac{1}{2}$	Single.	H'comb..	Gear'n	H. T...	Dry....	Pump..
Corbin 18	2750	32.4	T ton...	4	4	$4\frac{1}{2}$	$4\frac{1}{4}$	Single.	H'comb..	Gear'n	H. T...	Dry....	Pump..
Corbin 30	2000	32.4	Tour'g..	4	4	$4\frac{1}{2}$	$4\frac{1}{4}$	Single.	H'comb..	Gear'n	H. T...	Dry....	Pump..
Corbin 30	2000	32.4	T.ton...	5	4	$4\frac{1}{2}$	$4\frac{1}{4}$	Single.	H'comb..	Gear'n	H. T...	Dry....	Pump..
Corbin 40	3000	36.1	Tour'g..	4	4	$4\frac{3}{4}$	$5\frac{1}{2}$	Pairs..	H'comb..	Gear'n	H. T...	Storage	Pump..
Corbin 40	3100	36.1	Torp'o.	5	4	$4\frac{3}{4}$	$5\frac{1}{2}$	Pairs..	H'comb..	Gear'n	H. T...	Storage	Pump.
Corbin 40	4000	36.1	Limous.	7	4	$4\frac{3}{4}$	$5\frac{1}{2}$	Pairs..	H'comb..	Gear'n	H. T...	Storage	Pump..
Elmore 25	1200	30.0	R'ster..	2	4	4	$3\frac{1}{2}$	Single.	Tubular.	Syph'n	H. T...	Dry....	Pump..
Elmore 25	1250	30.0	Tour'g..	4	4	4	$3\frac{1}{2}$	Single.	Tubular.	Syph'n	H. T...	Dry....	Pump..
Elmore 36 B	1750	50.0	Tour'g..	5	4	$4\frac{1}{2}$	4	Single.	Tubular.	Syph'n	H. T...	Dry....	Pump..
Elmore 46 B	2500	70.0	Tour'g..	7	4	5	5	Single.	Tubular.	Syph'n	H. T...	Dry....	Pump..
E-M-F- "30"	1250	25.6	Tour'g.	5	4	4	$5\frac{1}{2}$	Pairs..	Tubular.	Cent 'fl	H. T...	Dry....	Gravity
Flanders "20"	750	22.5	R'ster..	[1]2	4	$3\frac{3}{4}$	$3\frac{5}{8}$	Block.	Tubular.	Cent 'fl	H. T...	Dry....	Gravity
Everitt "30"	1350	30.0	Tour'g..	5	4	4	$4\frac{3}{4}$	Block.	Cellular..	Cent 'fl	H. T...	Storage	Splash..
Everitt "30"	1350	30.0	F.d.Tg..	4	4	4	$4\frac{3}{4}$	Block.	Cellular..	Cent 'fl	H T...	Storage	Splash..
Everitt "30"	1350	30.0	Coupe...	4	4	4	$4\frac{3}{4}$	Block.	Cellular..	Cent 'fl	H. T...	Storage	Splash..
Everitt "30"	1350	30.0	D.ton..	4	4	4	$4\frac{3}{4}$	Block.	Cellular..	Cent 'fl	H. T...	Storage	Splash..
Franklin G	1950	18.2	T.phaet	2	4	4	$3\frac{3}{8}$	Single.	Air-Cool.	S'n fan	H. T...	None...	Pump..
Franklin G	1950	18.2	Tour'g..	4	4	4	$3\frac{3}{8}$	Single.	Air-cool..	S'n fan	H. T...	None...	Pump..
Franklin M	2700	25.6	Tour'g..	5	4	4	4	Single.	Air-cool..	S'n.fan	H. T...	None...	Pump..
Franklin M	3500	25.6	Limous.	7	4	4	4	Single.	Air-cool..	S'n fan	H. T...	None...	Pump..
Franklin M	3500	25.6	Land't..	7	4	4	4	Single.	Air-cool..	S'n fan	H. T...	None...	Pump..
Franklin H	4500	48.6	Tour'g..	7	6	$4\frac{1}{2}$	$4\frac{1}{2}$	Single.	Air-cool..	S'n fan	H. T...	None...	Pump..
Franklin H	4500	48.6	Torp'o..	4	6	$4\frac{1}{2}$	$4\frac{1}{2}$	Single.	Air-cool..	S'n fan	H. T...	None...	Pump..
Franklin D	4400	38.4	Land't..	7	4	4	4	Singlo.	Air-cool..	S'n fan	H. T...	None...	Pump..
Franklin D	3500	38.4	Tour'g..	5	6	4	4	Single.	Air-cool..	S'n fan	H. T...	None...	Pump..
Franklin D	3500	38.4	Torp'o.	4	6	4	4	Single.	Air-cool..	S'n fan	H. T...	None...	Pump..
Franklin D	4400	28.4	Limous.	7	6	4	4	Single.	Air-cool..	S'n fan	H. T...	None...	Pump..
Glide	2000	36.1	Tour'g..	7	4	$4\frac{3}{4}$	5	Single.	H'comb..	Rotary	H. T...	Storage	Splash..
Glide	2000	36.1	Tour'g..	5	4	$4\frac{3}{4}$	5	Single.	H'comb..	Rota'y	H. T...	Storage	Splash..
Glide	2000	36.1	[3]R'ster..	5	4	$4\frac{3}{4}$	5	Single.	H'comb..	Rota'y	H. T...	Storage	Splash..
Glide	2000	36.1	[4]R'ster..	5	4	$4\frac{3}{4}$	5	Single.	H'comb..	Rota'y	H. T...	Storage	Splash..
Glide	2150	36.1	F.d.To..	5	4	$4\frac{3}{4}$	5	Single.	H.comb..	Rota'v	H. T...	Storage	Splash.

[1] And 4 seats. [2] Also 60 inches.

CASE—Pierce Motor Co., Racine, Wis.
CHADWICK—Chadwick Engineering Works, Pottstown, Pa.
CHALMERS—Chalmers Motor Co., Detroit, Mich.
COLUMBIA—Columbia Motor Car Co., Hartford, Conn.
CORBIN—Corbin Motor Vehicle Co., New Britain, Conn.

In conjunction with the tabulations and illustrations of cars complete it will be worth while to examine the illustrations of motors with a view to becoming familiar with the respective schools of designs, and the several types of motors as employed in the various makes of automobiles. Space considerations prevented the showing of the power plant of each model of car which will be on exhibition at the Garden, but by means

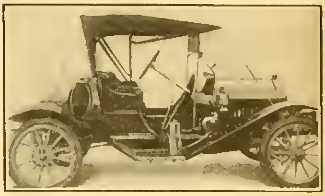
on the American Market for 1911

Clutch	TRANSMISSION Type	Speeds	Location	Drive	Wheelbase	Tread	Frame	BEARINGS Crank-shaft	Trans-mis'n	Axle	Weight	TIRES Front	Rear
M. Disc	Sel.	3	Unit	Shaft	....	56	P. Steel	3 Plain	Roller	Roller	2700	34x4	34x4
M. Disc	Sel.	3	Unit	Shaft	....	56	P. Steel	3 Plain	Roller	Roller	2700	34x4	34x4
M. Disc	Sel.	3	Unit	Shaft	....	56	P. Steel	3 Plain	Roller	Roller	2600	34x4	34x4
Int. Exp.	Sel.	4	Unit	2 Chain	133	56½	P. Steel	Plain	Ball	Ball	3600	36x4	37x5
Int. Exp.	Sel.	4	Unit	2 Chain	133	56½	P. Steel	Plain	Ball	Ball	3450	36x4½	36x4½
Int. Exp.	Sel.	4	Unit	2 Chain	112	56½	P. Steel	Plain	Ball	Ball	3000	36x4½	36x4½
fot. Exp.	Sel.	4	Unit	2 Chain	133	56½	P. Steel	Plain	Ball	Ball	3900	36x4	37x5
M. Disc	Sel.	3	Unit	Shaft	115	56	P. Steel	Ball	Ball	Ball	.....	34x3½	34x3½
M. Disc	Sel.	3	Unit	Shaft	115	56	P. Steel	Ball	Ball	Ball	.....	34x3½	34x3½
M. Disc	Sel.	3	Unit	Shaft	115	56	P. Steel	Ball	Ball	Ball	.....	34x3½	34x3½
M. Disc	Sel.	3	Unit	Shaft	115	56	P. Steel	Ball	Ball	Ball	.....	34x4	34x4
M. Disc	Sel.	3	Unit	Shaft	115	56	P. Steel	Ball	Ball	Ball	.....	34x4	34x4
Cone	Sel.	3	Unit	Shaft	120	56	P. Steel	Plain	Ball	Roller	.....	36x4	36x4
Cone	Sel.	3	Unit	Shaft	120	56	P. Steel	Plain	Ball	Roller	.....	36x4	36x4
Cone	Sel.	3	Unit	Shaft	120	56	P. Steel	Plain	Ball	Roller	.....	36x4	36x4
Cone	Sel.	3	Unit	Shaft	120	56	P. Steel	Plain	Ball	Roller	.....	36x4	36x4
Cone	Sel.	3	Unit	Shaft	120	56	P. Steel	Plain	Ball	Roller	.....	36x4	36x4
Cone	Sel.	3	Unit	Shaft	120	56	P. Steel	Plain	Ball	Roller	.....	36x4½	36x4½
Cone	Sel.	3	Unit	Shaft	120	56	P. Steel	Plain	Ball	Roller	.....	36x4½	36x4½
Cone	Sel.	3	Unit	Shaft	115	56	P. Steel	Plain	Ball	Roller	.....	34x4	34x4
Cone	Sel.	3	Unit	Shaft	115	56	P. Steel	Plain	Ball	Roller	.....	34x4½	34x4½
Cone	Sel.	3	Unit	Shaft	115	56	P. Steel	Plain	Ball	Roller	.....	34x4½	34x4½
Cone	Sel.	3	Unit	Shaft	120	56	P. Steel	3pl.-2B.	Ball	Ball	2700	34x4	34x4
Cone	Sel.	3	Unit	Shaft	120	56	P. Steel	3pl.-2B.	Ball	Ball	2700	34x4	34x4
Cone	Sel.	3	Unit	Shaft	115	56	P. Steel	3pl.-2B.	Ball	Ball	2300	34x4	34x4
Cone	Sel.	3	Unit	Shaft	115	56	P. Steel	3pl.-2B.	Ball	Ball	2300	34x4	34x4
Cone	Sel.	3	Unit	Shaft	120	56	P. Steel	3 Plain	Ball	Ball	3000	36x4	34x4
Cone	Sel.	3	Unit	Shaft	120	56	P. Steel	3 Plain	Ball	Ball	3000	36x4	36x4
Cone	Sel.	3	Unit	Shaft	120	56	P. Steel	3 Plain	Ball	Ball	3000	36x4	36x4
Disc	Sel.	3	Motor	Shaft	108	56	P. Steel	Plain	Ball	Ball	2000	32x3½	32x3½
Disc	Sel.	3	Motor	Shaft	108	56	P. Steel	Plain	Ball	Ball	2200	32x3½	32x3½
Disc	Sel.	3	Motor	Shaft	114	56	P. Steel	Plain	Ball	Ball	2750	34x4	34x4
Disc	Sel.	3	Motor	Shaft	124	56	P. Steel	Plain	Ball	Ball	3200	36x4	36x4
Cone	Sel.	3	Axle	Shaft	106	[2]56	P. Steel	Plain	Plain	Roller	2150	32x3½	32x3½
Cone	Sel.	2	Axle	Shaft	100	[2]56	P. Steel	Plain	Ball	Roller	1200	32x3	32x3
Cone	Sel.	3	Axle	Shaft	110	[2]56	P. Steel	Plain	Plain	Roller	2200	34x3½	34x3½
Cone	Sel.	3	Axle	Shaft	110	[2]56	P. Steel	Plain	Plain	Roller	2200	34x3½	34x3½
Cone	Sel.	3	Axle	Shaft	110	[2]56	P. Steel	Plain	Plain	Roller	2200	34x3½	34x3½
Cone	Sel.	3	Axle	Shaft	110	[2]56	P. Steel	Plain	Plain	Roller	2200	34x3½	34x3½
M. Disc	Sel.	3	Unit	Shaft	100	56	Wood	Plain	Ball	Ball	1800	32x3½	32x4
M. Disc	Sel.	3	Motor	Shaft	100	56	Wood	Plain	Ball	Ball	1850	32x3½	32x4
M. Disc	Sel.	3	Motor	Shaft	108	56	Wood	Plain	Ball	Roller	2300	34x4	34x4½
M. Disc	Sel.	3	Motor	Shaft	108	56	Wood	Plain	Ball	Roller	.....	34x4	34x4½
M. Disc	Sel.	3	Motor	Shaft	108	56	Wood	Plain	Ball	Roller	.....	34x4	34x4½
M. Disc	Sel.	3	Motor	Shaft	133	56	Wood	Plain	Ball	Roller	3300	37x5	38x5½
M. Disc	Sel.	3	Motor	Shaft	126	56	Wood	Plain	Ball	Roller	3200	37x5	38x5½
M. Disc	Sel.	3	Motor	Shaft	123	56	Wood	Plain	Ball	Roller	.....	36x4½	37x5
M. Disc	Sel.	3	Motor	Shaft	123	56	Wood	Plain	Ball	Roller	2800	36x4½	37x5
M. Disc	Sel.	3	Motor	Shaft	123	56	Wood	Plain	Ball	Roller	2700	36x4½	37x5
M. Disc	Sel.	3	Motor	Shaft	123	56	Wood	Plain	Ball	Roller	.....	36x4½	37x5
M. Disc	Sel.	3	Axle	Shaft	120	[2]56	P. Steel	5 Plain	5 Rol.	Rollers	3400	36x4½	36x4½
M. Disc	Sel.	3	Axle	Shaft	120	[2]56	P. Steel	5 Plain	5 Rol.	Roller	3400	36x4	36x4
M. Disc	Sel.	3	Axle	Shaft	122	[2]56	P. Steel	5 Plain	5 Rol.	Roller	3300	36x4	36x4
M. Disc	Sel.	3	Axle	Shaft	122	[2]56	P. Steel	5 Plain	5 Rol.	Rollers	3300	40x4	40x4
M. Disc	Sel.	3	Axle	Shaft	120	[2]56	P. Steel	5 Plain	5 Rol.	Roller	3350	36x4½	36x4½

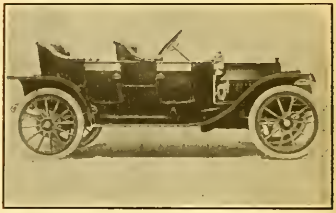
[2] Demi-tonneau. [4] Demi tonneau body, "Scout."

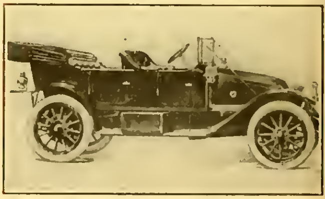
ELMORE—Elmore Mfg. Co., Clyde, O.
E-M-F—E-M-F Co., Detroit, Mich.
EVERITT—Metzger Motor Car Co., Detroit, Mich.
FRANKLIN—H. H. Franklin Mfg. Co., Syracuse, N. Y.
GLIDE—Bartholomew Co., Peoria, Ill.

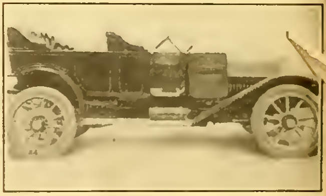
of a system of grouping it was possible to show examples of each type of power plant and to give the names of the makers employing them. In certain respects it will be found that there is a common basis for all of the power plants, as, for illustration, the high tension magneto ignition system is quite generally in use; there are very few examples of the low tension ignition system.


Elmore runabout

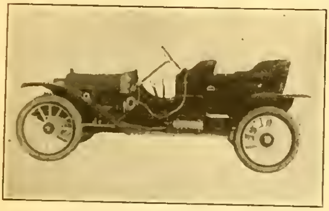
E-M-F "30" touring car

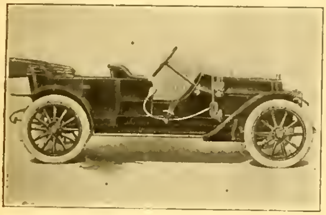

Everitt "30" fore-door close-coupled touring car

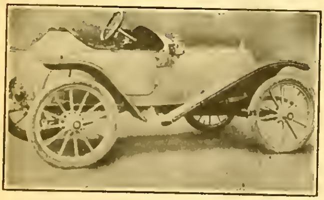

Franklin Model D 6-cylinder touring

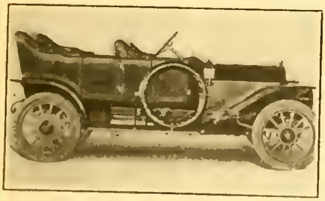

Glide fore-door touring car

Details of Passenger Automobiles


Haynes five-passenger touring car


Hudson "30" touring car


Hupmobile two-seated torpedo


Inter-State flush-sided torpedo

Jackson Model 41, fore door touring car

MAKE AND MODEL	Price	H.P. A.L.A.M.	BODY		MOTOR				COOLING		IGNITION		ication
			Type	Seats	Cyl.	Bore Inches	Stroke Inches	Cyl. Cast	Radi-ator	Pump	Mag-neto	Battery	
Haynes 20	$2000	28.9	Tour'g..	5	4	4¼	5	Pairs..	Cellular..	Gear..	H. T...	Dry....	Splash.
Haynes 20	2000	28.9	T. ton..	4	4	4¼	5	Pairs..	Cellular..	Gear..	H. T...	Dry....	Splash..
Haynes 20	2000	28.9	R'bout.	2	4	4¼	5	Pairs..	Cellular..	Gear..	H. T...	Dry....	Splash..
Haynes Y	3000	40.0	Tour'g..	7	4	5	5½	Pairs..	Cellular..	Gear..	H. T...	Storage	Pump..
Hudson "33"	1250	25.6	Tour'g..	5	4	4	4½	Block.	Tubular.	Cent'fl	H. T...	Dry....	Splash..
Hudson "33"	1300	25.6	T. ton..	4	4	4	4½	Block.	Tubular.	Cent'fl	H. T...	Dry....	Splash..
Hudson "33"	1350	25.6	Torp'o..	5	4	4	4½	Block.	Tubular.	Cent'fl	H. T...	Dry....	Splash..
Hudson "25"	1000	22.5	R'ster..	3	4	3¾	4½	Block.	Tubular	Cent'fl	H. T...	Dry....	Splash..
Hupmobile	900	16.9	Tour'g..	4	4	3¼	3⅜	Pairs..	Tubular.	Syph'n	H. T...	None...	Splash..
Hupmobile	1100	16.9	Coupe..	3	4	3¼	3⅜	Pairs..	Tubular.	Syph'n	H. T...	None...	Splash..
Hupmobile	850	16.9	Torp'o..	2	4	3¼	3⅜	Pairs..	Tubular.	Syph'n	H. T...	None...	Splash..
Hupmobile	750	16.9	R'bout.	2	4	3¼	3⅜	Pairs..	Tubular.	Syph'n	H. T...	None...	Splash..
Inter-State 30 A	1750	32.4	Tour'g..	5	4	4½	5	Pairs..	Tubular.	Cent'fl	H. T...	Dry....	Splash..
Inter-State 31 A	1750	32.4	D. ton..	4	4	4½	5	Pairs..	Tubular.	Cent'fl	H. T...	Dry....	Splash..
Inter-State 32 A	1750	32.4	R'ster..	3	4	4½	5	Pairs..	Tubular.	Cent'fl	H. T...	Dry....	Splash..
Inter-State 33A	1750	32.4	D r'ster	4	4	4½	5	Pairs..	Tubular.	Cent'fl	H. T...	Dry....	Splash..
Inter-State 34	2000	32.4	Torp'o..	4	4	4½	5	Pairs..	Tubular.	Cent'fl	H. T...	Dry....	Splash..
Inter-State 34 A	2000	32.4	Torp'o..	5	4	4½	5	Pairs..	Tubular.	Cent'fl	H. T...	Dry....	Splash..
Inter-State 35 A	2700	32.4	Tour'g..	7	4	4½	5½	Pairs..	Tubular.	Cent'fl	H. T...	Dry....	Splash..
Jackson "51"	2200	36.1	Tour'g.	5	4	4¾	4¾	Single	Cellular..	Syph'n	H. T...	Dry....	Pump..
Jackson "51"	2200	36.1	Tour'bt	4	4	4¾	4¾	Single.	Cellular.	Syph'n	H. T...	Dry....	Pump..
Jackson "41"	1700	32.4	Tour'g..	5	4	4½	4½	Pairs..	H'comb..	Syph'n	H. T...	Dry....	Pump..
Jackson "41"	1700	32.4	Tour'bt	4	4	4½	4½	Pairs..	H'comb..	Syph'n	H. T...	Dry....	Pump..
Jackson "38"	1650	30.6	Torp'o..	4	4	4⅜	4½	Pairs..	H'comb	Syph'n	H. T...	Dry....	Pump..
Jackson "30"	1250	25.6	Tour'g..	5	4	4	4	Pairs..	H'comb..	Syph'n	H. T...	Dry....	Pump..
Jackson "25"	1100	22.5	R'ster...	2	4	3¾	4½	Block.	H'comb..	Syph'n	H. T...	Dry....	Pump..
Kissel Kar LD-11	1500	28.9	Tour'g..	5	4	4¼	4¼	Pairs..	Cellular..	Cent'fl	H T...	Dry....	Pump..
Kissel Kar LD-11	1600	28.9	F'd.Tg..	5	4	4¼	4¼	Pairs..	Cellular..	Cent'fl	H. T...	Dry....	Pump..
Kissel Kar LD-11	1500	28.9	B. ton..	4	4	4¼	4¼	Pairs..	Cellular..	Cent'fl	H. T...	Dry....	Pump..
Kissel Kar LD-11	1600	28.9	S.racer.	2	4	4¼	4¼	Pairs..	Cellular..	Cent'fl	H. T...	Dry....	Pump..
Kissel KarD11&WS11	2000	38.0	Tour'g..	5	4	4⅞	4¾	Pairs..	Cellular..	Cent'fl	H. T...	Dry....	Pump..
Kissel Kar D-11	2100	38.0	F'd.Tg..	5	4	4⅞	4¾	Pairs..	Cellular..	Cent'fl	H. T...	Dry....	Pump..
Kissel Kar D11&WS 11	2000	38.0	B. ton..	4	4	4⅞	4¾	Pairs..	Cellular..	Cent'fl	H. T...	Dry....	Pump..
Kissel Kar D-11	2100	38.0	S.racer.	2	4	4⅞	4¾	Pairs..	Cellular..	Cent'fl	H. T...	Dry....	Pump..
Kissel Kar F-11	2500	48.6	Tour'g..	7	6	4½	4¾	Pairs..	Cellular..	Cent'fl	H. T...	Dry....	Pump..
Kissel Kar F-11	2600	48.6	F'd.Tg..	7	6	4½	4¾	Pairs..	Cellular..	Cent'fl	H. T...	Dry....	Pump..
Kissel Kar F-11	2500	48.6	B. ton..	4	4	4½	4¾	Pairs..	Cellular..	Cent'fl	H. T...	Dry....	Pump..
Kissel Kar F-11	2600	48.6	S racer.	2	4	4½	4¾	Pairs..	Cellular..	Cent'fl	H. T...	Dry....	Pump..
Kissel Kar G-11	3000	57.0	Tour'g..	7	6	4⅞	4¾	Pairs..	Cellular..	Cent'fl	H. T...	Dry....	Pump..
Kissel Kar G-11	3100	57.0	F'd.Tg..	7	6	4⅞	4¾	Pairs..	Cellular..	Cent'fl	H. T...	Dry....	Pump..
Kissel Kar G-11	3000	57.0	B. ton..	4	6	4⅞	4¾	Pairs..	Cellular..	Cent'fl	H. T...	Dry....	Pump..
Knox R	3500	40.0	Tour'g..	[1]	4	5	4¾	Single.	Tubular.	Cent'fl	H. T...	Dry....	Pump..
Knox R	3300	40.0	Tour'g..	[1]	4	5	4¾	Single.	Tubular.	Cent'fl	H. T...	Dry....	Pump..
Knox R	4250	40.0	Limous.	7	4	5	4¾	Single.	Tubular.	Cent'fl	H. T...	Dry....	Pump..
Knox R	4250	40.0	Land't..	6	4	5	4¾	Single.	Tubular.	Cent'fl	H. T...	Dry....	Pump..
Knox R	3400	40.0	Torp'o..	4	4	5	4¾	Single.	Tubular.	Cent'fl	H. T...	Dry....	Pump..
Knox R	3350	40.0	Ton'te..	5	4	5	4¾	Single.	Tubular.	Cent'fl	H. T...	Dry....	Pump..
Knox R	3250	40.0	C.coupl.	5	4	5	4¾	Single.	Tubular.	Cent'fl	H. T...	Dry....	Pump..
Knox R	3300	40.0	Rac'b't.	2	4	5	4¾	Single	Tubular.	Cent'fl	H. T...	Dry....	Pump..
Knox R	3200	40,0	Rac'b't.	2	4	5	4¾	Single.	Tubular.	Cent'fl	H. T...	Dry....	Pump..
Knox S	5000	60.0	Tour'g..	7	6	5	4¾	Pairs..	Tubular.	Cent'fl	H. T...	Dry....	Pump..
Knox S	5000	60.0	Tour'g..	7	6	5	4¾	Pairs..	Tubular.	Cent'fl	H. T...	Dry....	Pump..
Knox S	4900	60.0	C.coupl.	5	6	5	4¾	Pairs..	Tubular.	Cent'fl	H. T...	Dry....	Pump..
Knox S	4900	60.0	B. ton..	5	6	5	4¾	Pairs..	Tubular.	Cent'fl	H. T...	Dry....	Pump..
Knox S	5000	60.0	Torp'o..	6	6	5	4¾	Pairs..	Tubular.	Cent'fl	H. T...	Dry....	Pump..
Knox S	4800	60.0	Rac'b't.	4	6	5	4¾	Pairs..	Tubular.	Cent'fl	H. T...	Dry....	Pump..
Knox S	4800	60.0	Rac'b't.	4	6	5	4¾	Pairs..	Tubular.	Cent'fl	H. T...	Dry....	Pump.
Knox S	6250	60.0	Limous.	7	6	5	4¾	Pairs..	Tubular.	Cent'fl	H. T...	Dry....	Pump
Lambert 44	1000	27.2	R'bout.	2	4	4⅛	4½	Block.	Tubular.	Cent'fl	H. T...	Dry....	Pump..
Lambert 55	1075	27.2	Surrey..	4	4	4⅛	4½	Block.	Tubular.	Cent'fl	H. T...	Dry....	Pump..
Lambert 77	1250	27.2	Tour'g..	4	4	4⅛	4½	Block.	Tubular.	Cent'fl	H. T...	Dry....	Pump..
Lambert 88	1350	27.2	Tour'g..	5	4	4⅛	4½	Block.	Tubular.	Cent'fl	H. T...	Dry....	Pump..
Lambert 100	1700	32.4	Tour'g..	5	4	4½	5	Single.	Tubular.	Gear..	H. T...	Dry....	Pump..
Lambert 101	1600	27.2	Torp'o..	4	4	4⅛	4½	Block.	Tubular.	Cent'fl	H. T...	Dry....	Pump..
Locomobile "L"	3500	30.0	Tour'g..	5	4	4½	4½	Pairs..	H'comb..	Cent'fl	H. T...	Storage	F feed
Locomobile "L"	4600	30 0	F'd.Lim	6	4	4½	4½	Pairs..	H'comb..	Cent'fl	H. T...	Storage	F.feed.
Locomobile "L"	3500	30.0	B ton ..	5	4	4½	4½	Pairs .	H'comb..	Cent'fl	H. T...	Storage	F.feed..
Locomobile "M"	4800	48.0	Tour'g..	7	6	4½	4½	Pairs..	H'comb..	Cent'fl	H T...	Storage	F.feed..
Polished Chassis		48.0	Tour'g.	7	6	4½	4½	Pairs..	H'comb..	Cent'fl	H. T...	Storage	Pump..

---

[1] 5 or 7 passengers.

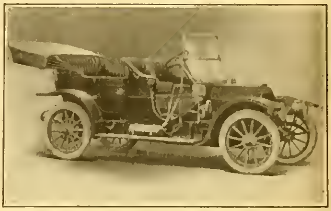
HAYNES—Haynea Automobile Co., Kokomo, Ind.
HUDSON—Hudson Motor Car Co., Detroit, Mich.
HUPMOBILE—Hupp Motor Car Co., Detroit, Mich.
INTER-STATE—Inter-State Automobile Co., Muncie, Ind.
JACKSON—Jackson Automobile Co., Jackson, Mich.

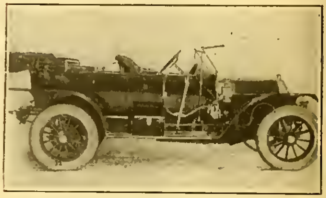
Don't tell the salesman how to build the automobile.

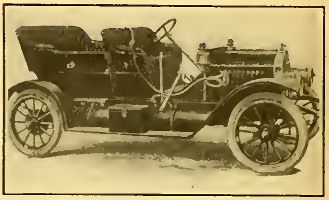
on the American Market for 1911

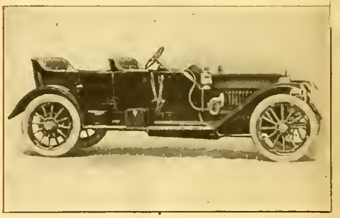
	TRANSMISSION							BEARINGS				TIRES	
Clutch	Type	Speeds	Location	Drive	Wheelbase	Tread	Frame	Crank-shaft	Trans-mis'n	Axle	Weight	Front	Rear
Con.b'd...	Sel....	3	Motor...	Shaft....	114	56	P. Steel..	Plain...	Roller.	Roller ..	2400	34x4	34x4
Con.b'd...	Sel....	3	Motor...	Shaft....	114	56	P. Steel .	Plain ..	Roller.	Roller...	2400	34x4	34x4
Con.b'd...	Sel....	3	Motor...	Shaft....	114	56	P Steel..	Plain ..	Roller.	Roller ..	2400	34x4	34x4
Con.b'd...	Sel....	3	Motor...	Shaft....	125	56	P. Steel..	Plain...	Roller.	Roller...	3400	36x4½	36x4½
Disc......	Sel....	3	Motor...	Shaft....	114	48	P. Steel..	Plain...	Ball...	Roller...	2400	34x3½	34x3½
Disc......	Sel....	3	Motor...	Shaft....	114	48	P. Steel..	Plain...	Ball...	Roller...	2350	34x3½	34x3½
Disc......	Sel....	3	Motor...	Shaft....	114	48	P. Steel..	Plain...	Ball...	Roller...	2400	34x3½	34x3½
Cone.....	Sel....	3	Motor...	Shaft....	100	48	P. Steel .	Plain...	Plain..	Roller...	1700	32x3½	32x3½
10 pl. disc	Sel....	2	Motor...	Shaft....	110	56	P. Steel..	Plain...	Plain..	Roller...	1500	30x3	31x3½
10 pl. disc	Sel....	2	Motor...	Shaft....	86	56	P. Steel..	Plain...	Plain..	Roller...	1600	30x3	31x3½
10 pl. disc	Sel....	2	Motor...	Shaft....	86	56	P. Steel..	Plain...	Plain..	Roller...	1300	30x3	30x3
10 pl. disc	Sel....	2	Motor...	Shaft....	86	56	P. Steel..	Plain...	Plain..	Roller..	1200	30x3	30x3
M. Disc...	Sel....	3	Unit....	Shaft....	118	56	P. Steel..	3 Plain.	Ball...	Roller...	.....	34x4	34x4
M. Disc...	Sel....	3	Unit....	Shaft....	118	56	P. Steel..	3 Plain.	Ball...	Roller...	.....	34x4	34x4
M. Disc...	Sel....	3	Unit....	Shaft....	118	56	P. Steel..	3 Plain.	Ball...	Roller...	.....	34x4	34x4
M. Disc...	Sel....	3	Unit....	Shaft....	118	56	P. Steel..	3 Plain.	Ball...	Roller..	.....	34x4	34x4
M. Disc...	Sel....	3	Unit....	Shaft....	118	56	P. Steel..	3 Plain.	Ball...	Roller...	.....	34x4	34x4
M. Disc...	Sel....	3	Unit....	Shaft....	118	56	P. Steel..	3 Plain.	Ball...	Roller...	.....	34x4	34x4
M. Disc...	Sel....	3	Unit....	Shaft....	118	56	P. Steel..	3 Plain.	Ball...	Roller..	.....	34x4	34x4
M. Disc...	Sel....	3	Motor...	Shaft....	120	[2]56	P. Steel..	5 Plain.	Ball...	R. & B.	2800	36x4	36x4
M. Disc...	Sel....	3	Motor...	Shaft....	120	[2]56	P. Steel..	5 Plain.	Ball...	R. & B.	2800	36x4	36x4
M. Disc...	Sel....	3	Motor...	Shaft....	110	[2]56	P. Steel..	3 Plain.	Ball...	R. & B.	2400	34x4	34x4
M. Disc...	Sel....	3	Motor...	Shaft....	110	[2]56	P. Steel..	3 Plain.	Ball...	R. & B.	2400	34x4	34x4
M. Disc...	Sel....	3	Motor...	Shaft....	115	[2]56	P. Steel..	3 Plain.	Ball...	R. & B.	2450	34x4	34x4
M. Disc...	Sel,...	3	Motor...	Shaft....	105	[2]56	P. Steel..	3 Plain.	Ball...	R. & B.	2000	32x3½	32x3½
M. Disc...	Sel....	3	Unit....	Shaft....	105	[2]56	P. Steel..	2 B.&pl	Ball...	R. & B.	1850	32x3½	32x3½
Cone.....	Sel....	3	S. Frame	Shaft....	116	56	P. Steel..	Plain...	Ball...	Roller...	.....	34x4	34x4
Cone.....	Sel....	3	S. Frame	Shaft....	116	56	P. Steel..	Plain...	Ball...	Roller...	.....	34x4	34x4
Cone.....	Sel....	3	S. Frame	Shaft....	116	56	P. Steel..	Plain...	Ball...	Roller...	.....	34x4	34x4
Cone.....	Sel....	3	S. Frame	Shaft....	....	56	P. Steel..	Plain...	Ball...	Roller...	.....	Opt'al..	Opt'al.
Cone.....	Sel....	4	S. Frame	Shaft....	124	56	P. Steel .	Plain...	Ball...	Roller...	.....	36x4	36x4
Cone.....	Sel....	4	S. Frame	Shaft....	124	56	P. Steel .	Plain...	Ball...	Roller...	.....	36x4	36x4
Cone.....	Sel....	4	S. Frame	Shaft....	124	56	P. Steel..	Plain...	Ball...	Roller...	.....	36x4	36x4
Cone.....	Sel....	4	S. Frame	Shaft....	124	56	P. Steel..	Plain...	Ball...	Roller...	.....	Opt'al	Opt'al
Cone.....	Sel....	4	S. Frame	Shaft....	132	56	P. Steel..	Plain...	Ball...	Roller...	.....	36x4	36x4½
Cone.....	Sel....	4	S. Frame	Shaft....	132	56	P. Steel..	Plain...	Ball...	Roller...	.....	36x4	36x4½
Cone.....	Sel....	4	S. Frame	Shaft....	132	56	P. Steel..	Plain...	Ball...	Roller...	.....	40x4	40x4
Cone.....	Sel....	4	S. Frame	Shaft....	132	56	P. Steel..	Plain...	Ball...	Roller...	.....	Opt'al	Opt'al
Cone.....	Sel....	4	S. Frame	Shaft....	142	56	P. Steel..	Plain...	Ball...	Roller...	.....	36x4½	36x5
Cone.....	Sel....	4	S. Frame	Shaft....	142	56	P Steel..	Plain...	Ball...	Roller...	.....	36x4½	36x5
Cone.....	Sel....	4	S. Frame	Shaft....	142	56	P. Steel..	Plain...	Ball...	Roller...	.....	40x4	40x4
3 Plate...	Sel....	3	Motor...	Shaft....	122	56	P. Steel .	Plain...	Ball...	Ball....	3400	36x4½	36x4½
3 Plate...	Sel....	3	Motor...	Shaft....	122	56	P Steel	Plain...	Ball...	Ball....	3400	36x4½	36x4½
3 Plate...	Sel....	3	Motor...	Shaft....	122	56	P. Steel..	Plain...	Ball...	Ball....	3400	36x4½	36x4½
3 Plate...	Sel....	3	Motor...	Shaft....	122	56	P. Steel..	Plain...	Ball...	Ball....	3400	36x4½	36x4½
3 Plate...	Sel....	3	Motor...	Shaft....	122	56	P. Steel..	Plain...	Ball...	Ball....	3400	36x4½	36x4½
3 Plate...	Sel....	3	Motor...	Shaft....	122	56	P. Steel..	Plain...	Ball...	Ball....	3400	36x4½	36x4½
3 Plate...	Sel....	3	Motor...	Shaft....	122	56	P. Steel..	Plain...	Ball...	Ball....	3400	36x4½	36x4½
3 Plate...	Sel....	3	Motor...	Shaft....	122	56	P. Steel .	Plain'..	Ball...	Ball....	3400	36x4½	36x4½
3 Plate...	Sel....	3	Motor...	Shaft....	117	56	P. Steel..	Plain...	Ball...	Ball....	3400	36x4½	36x4½
Disc......	Sel....	3	Motor...	Shaft....	134	56	P. Steel .	Plain...	Ball...	Ball....	3900	38x5½	38x5½
Disc......	Sel....	3	Motor...	Shaft....	134	56	P. Steel..	Plain...	Ball...	Ball ...	4000	38x5½	38x5½
Disc......	Sel....	3	Motor...	Shaft....	134	56	P. Steel .	Plain...	Ball...	Ball....	3850	38x5½	38x5½
Disc......	Sel....	3	Motor...	Shaft....	134	56	P. Steel..	Plain...	Ball...	Ball....	3850	38x5½	38x5½
Disc......	Sel....	3	Motor...	Shaft....	134	56	P Steel .	Plain...	Ball...	Ball....	4000	38x5½	38x5½
Disc......	Sel....	3	Motor...	Shaft....	134	56	P. Steel .	Plain...	Ball...	Ball....	3600	38x5½	38x5½
Disc......	Sel....	3	Motor...	Shaft....	134	56	P. Steel..	Plain...	Ball...	Ball....	3650	38x5½	38x5½
Disc......	Sel....	3	Motor...	Shaft....	134	56	P. Steel..	Plain...	Ball...	Ball....	4400	38x5½	38x5½
None.....	Frict'n	...	Motor...	Chain...	102	56	P. Steel..	Ball....	Roller.	Roller...	1900	30x3½	30x3½
None.....	Frict'n	...	Motor...	Chain...	102	56	P. Steel..	Ball....	Roller	Roller...	2000	30x3½	30x3½
None.....	Frict'n	...	Motor...	Chain...	106	56	P. Steel..	Ball....	Roller.	Ball....	2200	32x3½	32x3½
None.....	Frict'n	...	Motor...	Chain...	112	56	P. Steel..	Ball....	Roller.	Ball....	2300	32x3½	32x3½
None.....	Frict'n	...	Motor...	Chain...	115	56	P. Steel..	Ball....	Roller.	Ball....	2500	34x4	34x4
None.....	Frict'n	...	Motor...	Chain...	112	56	P. Steel..	Ball....	Roller.	B. & R.	2400	33x4	33x4
Cone.....	Sel....	4	Unit....	Shaft....	120	54	P. Steel..	Plain...	Ball...	Ball....	.....	34x4½	34x4½
Cone.....	Sel....	4	Unit....	Shaft....	120	54	P. Steel..	Plain...	Ball...	Ball....	.....	34x4½	34x4½
Cone.....	Sel....	4	Unit....	Shaft....	120	54	P. Steel..	Plain...	Ball...	Ball....	.....	34x4	34x4
M. Disc...	Sel ...	4	Unit....	Shaft....	135	54	P. Steel..	Plain...	Ball...	Ball....	.....	36x4	37x5
M. Disc...	Sel....	4	Unit....	Shaft ...	135	54	P. Steel..	Plain ..	Ball...	Ball....	.....	36x4	37x5

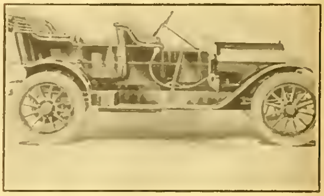
[2] Or 60 inches.


Kissel Kar with a touring body equipped complete


Knox 5-passenger torpedo


Lambert Model 88 5-passenger touring

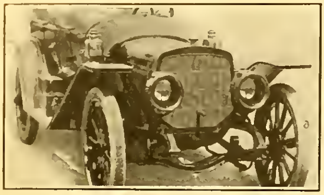

Locomobile Model M torpedo body touring car

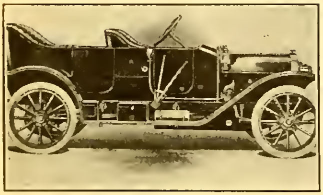

Mitchell Model T 5-passenger touring

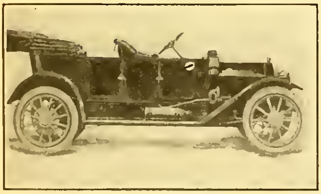
KISSEL KAR—Kissel Motor Car Co., Hartford, Wis.
KNOX—Knox Automobile Co., Springfield, Mass.
LAMBERT—Buckeye Mfg. Co., Anderson, Ind.
LOCOMOBILE—Locomobile Co. of America, Bridgeport, Conn.

Don't take free advice from your "accommodating" friends.

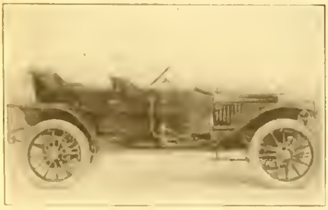
Details of Passenger Automobiles


Lozier flush-sided torpedo


McIntyre 5-passenger touring car


Marmon "32" touring

Matheson 6-60 touring car


Maxwell Model G touring car

MAKE AND MODEL	Price	H.P.A.L.A.M.	BODY		MOTOR				COOLING		IGNITION		Lubrication
			Type	Seats	Cyl.	Bore Inches	Stroke Inches	Cyl. Cast	Radiator	Pump	Magneto	Battery	
Lozier 51	$5500	51.6	Tour'g	7	6	4⅝	5½	Pairs	H'comb	Cent'fl	H. T.	Storage	Splash
Lozier 51	5500	51.6	B'cliff	5	6	4⅝	5½	Pairs	H'comb	Cent'fl	H. T.	Storage	Splash
Lozier 51	5500	51.6	L'wood	5	6	4⅝	5½	Pairs	H'comb	Cent'fl	H. T.	Storage	Splash
Lozier 51	7000	51.6	Limous	7	6	4⅝	5½	Pairs	H'comb	Cent'fl	H. T.	Storage	Splash
Lozier 46	4600	46.0	Tour'g	7	4	5⅜	6	Pairs	H'comb	Cent'fl	H. T.	Storage	Splash
Lozier 46	4600	46.0	B'cliff	5	4	5⅜	6	Pairs	H'comb	Cent'fl	H, T.	Storage	Splash
Lozier 46	4600	46.0	L'wood	5	4	5⅜	6	Pairs	H'comb	Cent'fl	H. T.	Storage	Splash
Lozier 46	6000	46.0	Limous	7	4	5⅜	6	Pairs	H'comb	Cent'fl	H. T.	Storage	Splash
McIntyre A-4	850	18.0	Tour'g	4	2	4¾	4¾	Single	Tubular	Syph'n	H. T.	None	Pump
McIntyre A-5	1250	25.6	Tour'g	5	4	4	4½	Single	Tubular	Syph'n	H. T.	None	Pump
McIntyre T-5	1150	25.6	T'bout	2	4	4	4⅛	Single	Tubular	Syph'n	H. T.	None	Pump
McIntyre M-5	1650	32.4	Tour'g	5	4	4½	5½	Single	Tubular	Cent fl	H. T.	None	Pump
McIntyre T-1	1850	32.4	Torp'o	5	4	4½	5¼	Single	Tubular	Cent'fl	H. T.	None	Pump
McIntyre XIV	1250	23.0	Extra	2	2	5⅜	4¾	Single	Tubular	Gear	H. T.	None	Pump
McIntyre XXIV	1950	27.2	Extra	2	4	4⅛	3¾	Single	Tubular	Gear	H. T.	Storage	Pump
McIntyre 251	900	18.0	Extra	2	2	4¾	4¾	Single	Tubular	Gear	H. T.	None	Pump
McIntyre 251	800	18.0	Extra	2	2	4¾	4¾	Single	Air-cool	None	H. T.	None	Pump
Marmon "32"	2750	32.4	Tour'g	5	4	4½	5	Pairs	Cellular	Cent 'fl	H. T.	Storage	F. feed
Marmon "32"	2750	32.4	Sub'n	4	4	4½	5	Pairs	Cellular	Cent 'fl	H. T.	Storage	F. feed
Marmon "32"	2750	32.4	R'ster	2	4	4½	5	Pairs	Cellular	Cent 'fl	H. T.	Storage	F. feed
Matheson Six 18	3500	48.6	Tour'g	5	6	4½	5	Pairs	Tubular	Cent 'fl	H. T.	Storage	Pump
Matheson Six 19	3500	48.6	T. ton	4	6	4½	5	Pairs	Tubular	Cent 'fl	H. T.	Storage	Pump
Matheson Six 20	3500	48.6	T'bout	4	6	4½	5	Pairs	Tubular	Cent 'fl	H. T.	Storage	Pump
Matheson Six 21	3500	48.6	R'bout	2	6	4½	5	Pairs	Tubular	Cent 'fl	H. T.	Storage	Pump
Matheson Six 22	3500	48.6	C.coupe	4	6	4½	5	Pairs	Tubular	Cent 'fl	H. T.	Storage	Pump
Matheson Six 23	4700	48.6	Limous	7	6	4½	5	Pairs	Tubular	Cent 'fl	H. T.	Storage	Pump
Matheson Six 24	4700	48.6	Land't	7	6	4½	5	Pairs	Tubular	Cent 'fl	H. T.	Storage	Pump
Maxwell "E A"	1600	30.0	Tour'g	5	4	4¼	4½	Single	H'comb	Syph'n	H. T.	Dry	Grav
Maxwell "G A"	1600	30.0	Tour'g	4	4	4¼	4¼	Single	H'comb	Syph'n	H. T.	Dry	Grav
Maxwell "I"	1100	25.0	Tour'g	4	4	4	4	Pairs	H'comb	Syph'n	H. T.	Dry	Grav
Maxwell "Q"	900	22.0	R'bout	2	4	3¾	4	Pairs	H'comb	Syph'n	H. T.	Dry	Grav
Maxwell "A B"	600	14.0	R'bout	2	2	4½	4	Single	H'comb	Syph'n	H. T.	Dry	Grav
Mercer 30-C	2150	28.9	T. ton	4	4	4¼	4½	Pairs	Tubular	Cent 'fl	H. T.	Dry	Pump
Mercer 30-C	2150	28.9	Tour'g	5	4	4¼	4½	Pairs	Tubular	Cent 'fl	H. T.	Dry	Pump
Mercer 35	2250	30.6	Racing	2	4	4⅜	5	Pairs	Cellular	Cent 'fl	H. T.	None	Pump
Mercer 35	2250	30.6	R'bout	2	4	4⅜	5	Pairs	Cellular	Cent 'fl	H. T.	None	Pump
Midland L-1	2000	32.4	Tour'g	4	4	4½	5	Pairs	H'comb	Cent 'fl	H. T.	Dry	Splash
Midland L-1	2000	32.4	T. ton	5	4	4½	5	Pairs	H'comb	Cent 'fl	H. T.	Dry	Splash
Midland L-1	1950	32.4	R'ster	5	4	4½	5	Pairs	H'comb	Cent 'fl	H. T.	Dry	Splash
Midland L-2	2100	32.4	R T'g	4	4	4½	5	Pairs	H'comb	Cent 'fl	H. T.	Dry	Splash
Midland L-2	2100	32.4	F.d. T.t	7	4	4½	5	Pairs	H.comb	Cent 'fl	H. T.	Dry	Splash
Midland K	2250	36.1	Tour'g	5	4	4¾	5½	Pairs	Tubular	Cent 'fl	H. T.	Dry	Splash
Midland K	2250	36.1	C. coupl	4	4	4¾	5½	Pairs	Tubular	Cent 'fl	H. T.	Dry	Splash
Mitchell R	1200	28.9	Ru'ble	3	4	4¼	5	Pairs	Tubular	Cent 'fl	H. T.	Dry	Pump
Mitchell R T	1250	28.9	Surrey	4	4	4¼	5	Pairs	Tubular	Cent 'fl	H. T.	Dry	Pump
Mitchell T	1500	28.9	Tour'g	5	4	4¼	5	Pairs	Tubular	Cent 'fl	H. T.	Dry	Pump
Mitchell S	2250	43.4	Tour'g	7	6	4¼	5	Pairs	Tubular	Cent 'fl	H. T.	Dry	F. feed
Moline M-36	1650	25.6	Tour'g	5	4	4	6	Pairs	Tubular	None	H. T.	Storage	Pump
Moline M-35	1600	25.6	T. ton	4	4	4	6	Pairs	Tubular	None	H. T.	Storage	Pump
Moon 30	1500	28.9	Tour'g	5	4	4¼	5	Pairs	Tubular	Cent 'fl	H. T.	Dry	Splash
Moon 30	1500	28.9	T. ton	4	4	4¼	5	Pairs	Tubular	Cent 'fl	H. T.	Dry	Splash
Moon 30	2750	28.9	Limous	7	4	4¼	5	Pairs	Tubular	Cent 'fl	H. T.	Dry	Splash
Moon 30	1500	28.9	R'ster	3	4	4¼	5	Pairs	Tubular	Cent 'fl	H. T.	Dry	Splash
Moon 30	2250	28.9	Coupe	3	4	4¼	5	Pairs	Tubular	Cent 'fl	H. T.	Dry	Splash
Moon 45	3000	36.1	Tour'g	7	4	4¾	5	Pairs	H'comb	Cent 'fl	H. T.	Dry	Mech
Moon 45	3000	36.1	T. ton	5	4	4¾	5	Pairs	H'comb	Cent 'fl	H. T.	Dry	Mech
Moon 45	4000	36.1	Limous	7	4	4¾	5	Pairs	H'comb	Cnet 'fl	H. T.	Dry	Mech
Moon 45	3100	36.1	Fore-D	7	4	4¾	5	Pairs	H'comb	Cent 'fl	H. T.	Dry	Mech
Moon 45	3100	36.1	Torp'o	4	4	4¾	5	Pairs	H'comb	Cent 'fl	H. T.	Dry	Mech
National 40	2500	40.0	R'ster	2	4	5	5 11/16	Pairs	H'comb	Cent 'fl	H. T.	Storage	Pump
National 40	2500	40.0	T. ton	4	4	5	5 11/16	Pairs	H'comb	Cent 'fl	H. T.	Storage	Pump
National 40	2500	40.0	Tour'g	5	4	5	5 11/16	Pairs	H'comb	Cent 'fl	H. T.	Storage	Pump
National 40	2600	40.0	T. ton[1]	4	4	5	5 11/16	Pairs	H'comb	Cent 'fl	H. T.	Storage	Pump
National 40	2600	40.0	D.Tour	5	4	5	5 11/16	Pairs	H'comb	Cent 'fl	H. T.	Storage	Pump

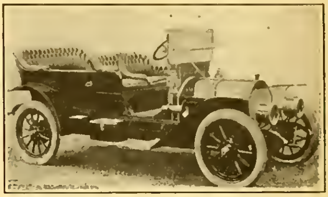
[1] Fore-door Type.

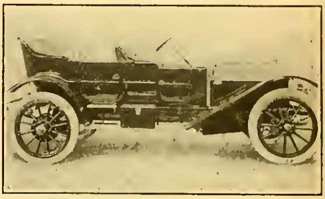
LOZIER—Lozier Motor Co., Broadway & 56th St., New York, N. Y.
McINTYRE—W. H. McIntyre Co., Auburn, Ind.
MARMON—Nordyke-Marmon Co., Indianapolis, Ind.
MATHESON—Matheson Motor Car Co., Wilkes-Barre, Pa.
MAXWELL—Maxwell-Briscoe Motor Co., Tarrytown, N. Y.
MERCER—Mercer Automobile Co., Trenton, N. J.

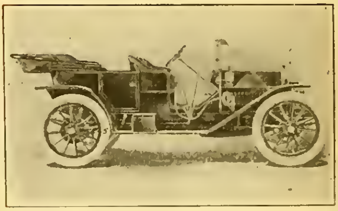
Don't place too much store upon the color of the paint on car. Don't let any man talk you into taking the car that will not suit your purpose.

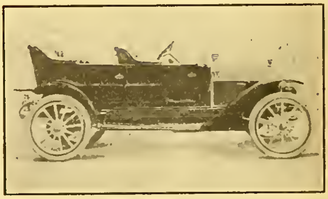
on the American Market for 1911

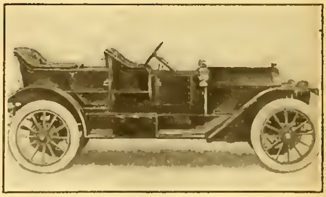
utch	TRANSMISSION				Wheelbase	Tread	Frame	BEARINGS			Weight	TIRES	
	Type	Speeds	Loca-tion	Drive				Crank-shaft	Trans-mis'n	Axle		Front	Rear
Disc......	Sel....	4	Unit....	Shaft....	131	56	Al. Steel.	Ball....	Ball...	Ball....	3655	36x4	36x5
Disc......	Sel....	4	Unit....	Shaft....	131	56	Al. Steel.	Ball....	Ball...	Ball....	3450	36x4	36x5
Disc......	Sel....	4	Unit....	Shaft....	131	56	Al. Steel.	Ball....	Ball...	Ball....	3450	36x4	36x5
Disc......	Sel....	4	Unit....	Shaft....	131	56	Al. Steel.	Ball....	Ball...	Ball....	4375	36x4	36x5
Disc......	Sel....	4	Unit....	Shaft....	124	56	Al. Steel.	Ball....	Ball...	Ball....	3580	36x4	36x5
Disc......	Sel....	4	Unit....	Shaft ...	124	56	Al. Steel.	Ball....	Ball...	Ball....	3375	36x4	36x5
Disc......	Sel....	4	Unit....	Shaft....	124	56	Al. Steel.	Ball....	Ball...	Ball....	3375	36x4	36x5
Disc......	Sel....	4	Unit....	Shaft....	124	56	Al. Steel.	Ball....	Ball...	Ball....	3400	36x4	36x5
M. Disc...	Plane..	2	Axle....	Shaft....	97	56	Angle St.	Plain...	Roller.	Roller...	1800	30x3	30x3
M. Disc...	Plane..	3	Axle....	Shaft....	110	56	P. Steel..	Plain...	Roller.	Roller...	2000	32x3	32x3
M. Disc...	Plane..	3	Axle....	Shaft....	110	56	P. Steel..	Plain...	Roller.	Roller...	1850	32x3	32x3
Cone.....	Sel....	3	S. Frame	Shaft....	125	56	P. Steel..	Plain...	Ball...	Roller...	2100	36x3½	36x3½
Cone.....	Sel.....	3	S. Frame	Shaft....	125	56	P. Steel..	Plain...	Roller.	Roller...	2300	36x3½	36x3½
Cone......	Plane..	2	Unit....	Chain...	106	56	P. Steel..	Plain...	Plain..	Roller...	2000	34x2½	34x2½
M. Disc...	Plane..	2	Unit....	Chain...	120	56	P. Steel..	Plain...	Plain..	Roller..	3100	32x4	32x4
M. Disc...	Plane..	2	Unit....	Chain...	86	56	P. Steel..	Plain...	Plain..	Roller...	1600	34x1¾	34x2
M. Disc...	Plane..	2	Unit....	Chain...	86	56	P. Steel..	Plain...	Plain..	Roller...	1600	34x1¾	34x2
Cone.....	Sel....	3	Axle....	Shaft....	120	56½	P. Steel..	Plain...	Ball...	Roller...	2500	34x4	34x4
Cone.....	Sel..	3	Axle....	Shaft....	120	56½	P. Steel..	Plain...	Ball...	Roller...	2500	34x4	34x4
Cone.....	Sel....	3	Axle....	Shaft....	120	56½	P. Steel..	Plain...	Ball...	Roller...	2500	34x4	34x4
M. Disc...	Sel....	3	Axle....	Shaft....	125½	56	P. Steel..	Plain...	Ball...	B. &R.	3500	36x4	36x4
M. Disc...	Sel ...	3	Axle....	Shaft....	125½	56	P. Steel..	Plain...	Ball...	B. & R.	3400	36x4	36x4
M. Disc...	Sel ...	3	Axle....	Shaft....	125½	56	P. Steel..	Plain...	Ball...	B. & R.	3400	36x4	36x4
M. Disc...	Sel....	3	Axle....	Shaft....	125½	56	P. Steel..	Plain...	Ball...	B. & R.	3400	36x4	36x4
M. Disc...	Sel....	3	Axle....	Shaft....	125½	56	P. Steel..	Plain...	Ball...	B. & R.	3400	36x4	36x4
M. Disc...	Sel....	3	Axle....	Shaft....	125½	56	P. Steel..	Plain...	Ball...	B. & R.	3900	36x4	36x5
M. Disc...	Sel....	3	Axle....	Shaft....	125½	56	P. Steel..	Plain...	Ball...	B. & R.	3900	36x4	36x5
M. Disc...	Prog..	3	Motor...	Shaft....	110	56	P. Steel..	Plain...	Plain..	Roller...	.....	34x4	34x4
M. Disc...	Prog..	3	Motor...	Shaft....	110	56	P. Steel..	Plain...	Plain..	Roller...	.....	34x4	34x4
M. Disc...	Prog..	3	Motor...	Shaft....	104	56	P. Steel .	Plain...	Plain..	B. & R.	.....	32x3½	32x3½
M. Disc...	Prog..	3	Motor...	Shaft....	93	56	P. Steel..	Plain...	Ball...	Ball....	.....	30x3½	30x3½
M. Disc...	Plane..	2	Motor...	Shaft....	86	56	P. Steel..	Plain ..	Plain..	Ball....	.....	28x3	28x3
Disc......	Sel....	3	S. Frame	Shaft....	116	56	Channel.	3 Plain.	Ball...	Ball....	2500	34x4	34x4
Disc......	Sel....	3	S. Frame	Shaft....	116	56	Channel.	3 Plain.	Ball...	Ball....	2700	34x4	34x4
Disc......	Sel....	3	S. Frame	Shaft....	108	56	Channel.	3 Plain.	Ball...	Ball....	2100	32x3½	32x4
Disc......	Sel....	3	S. Frame	Shaft....	108	56	Channel.	5 Plain.	Ball...	Ball....	2200	34x4	34x4
M. Disc...	Sel....	3	Unit.....	Shaft....	115	56	P. Steel..	Plain...	Ball .	Ball....	2500	34x4	34x4
M. Disc...	Sel....	3	Unit.....	Shaft....	115	56	P. Steel..	Plain...	Ball .	Ball....	2600	34x4	34x4
M. Disc...	Sel....	3	Unit.....	Shaft....	115	56	P. Steel..	Plain...	Ball ..	Ball....	2700	34x4	34x4
M. Disc...	Sel....	3	Unit.....	Shaft....	115	56	P. Steel..	Plain...	Ball ..	Ball....	2700	34x4	34x4
M. Disc...	Sel....	3	Unit.....	Shaft....	115	56	P. Steel..	Plain...	Ball ..	Ball....	2600	34x4	34x4
M. Disc ..	Sel....	3	Unit.....	Shaft....	118	56	P. Steel..	Plain...	Roller.	Roller...	3000	36x4	36x4
M. Disc ..	Sel....	3	Unit.....	Shaft....	118	56	P. Steel..	Plain...	Roller.	Roller...	3000	36x4	36x4
Cone.....	Sel....	3	Unit....	Shaft....	100	56	Channel.	....	B. & R.	Semi Fl.	.....	32x3½	32x3½
Cone.....	Sel....	3	Unit....	Shaft....	100	56	Channel.	....	B. & R.	Semi Fl.	.....	32x3½	32x3½
Cone.....	Sel....	3	Unit....	Shaft....	115	56	Channel.	....	B. & R.	Full Fl.	.....	34x4	34x4
Cone.....	Sel....	3	Unit....	Shaft....	130	56	Channel.	....	B. & R.	Full Fl.	.....	36x4½	36x4½
Cone.....	Sel....	3	Motor...	Shaft....	112	56	Dr. St...	Plain...	Roller.	R. & B.	2400	36x3½	36x3½
Cone.....	Sel....	3	Motor...	Shaft....	112	56	Dr. St...	Plain...	Roller.	R. & B.	2400	36x3½	36x3½
M. Disc...	Sel....	3	Axle....	Shaft....	114	56	P. Steel..	3 Plain.	Roller.	Roller...	2650	34x3½	34x3½
M. Disc...	Sel....	3	Axle....	Shaft ...	114	56	P. Steel..	3 Plain.	Roller.	Roller...	2650	34x3½	34x3½
M. Disc...	Sel....	3	Axle....	Shaft....	114	56	P. Steel .	3 Plain.	Roller.	Roller...	2650	34x3½	34x4
M. Disc...	Sel....	3	Axle....	Shaft....	114	56	P. Steel..	3 Plain.	Roller.	Roller...	2650	34x3½	34x3½
M. Disc...	Sel....	3	Axle....	Shaft....	114	56	P. Steel..	3 Plain.	Roller.	Roller...	2650	34x3½	34x3½
M. Disc...	Sel....	4	Unit....	Shaft....	121	56	P. Steel..	Plain...	Plain..	Ball....	3100	36x4	36x4½
M. Disc...	Sel....	4	Unit....	Shaft....	121	56	P. Steel..	Plain...	Plain..	Ball....	3100	36x4	36x4
M. Disc...	Sel....	4	Unit....	Shaft....	121	56	P. Steel..	Plain...	Plain..	Ball....	3100	36x4	36x4½
M. Disc...	Sel....	4	Unit....	Shaft....	121	56	P Steel..	Plain ..	Plain..	Ball....	3100	36x4	36x4½
M. Disc...	Sel....	4	Unit....	Shaft....	121	56	P. Steel..	Plain...	Plain .	Ball....	3100	36x4	36x4
Cone.....	Sel ...	3	Unit....	Shaft....	124	56	P. Steel..	Plain...	Ball...	Roller...	2650	36x4	36x4
Cone.....	Sel....	3	Unit....	Shaft....	124	56	P Steel..	Plain...	Ball...	Roller...	2800	36x4	36x4
Cone.....	Sel....	3	Unit....	Shaft....	124	56	P. Steel .	Plain...	Ball...	Roller...	2850	36x4	36x4
Cone.....	Sel....	3	Unit....	Shaft....	124	56	P. Steel..	Plain...	Ball...	Roller...	2800	36x4	36x4
Cone.....	Sel....	3	Unit....	Shaft....	124	56	P. Steel..	Plain...	Ball...	Roller...	2850	36x4	36x4


Mercer type 30 M touring car


Midland Model L 2 touring car


Moline 35 H. P. 5-passenger touring


Moon fore-door 5-passenger touring

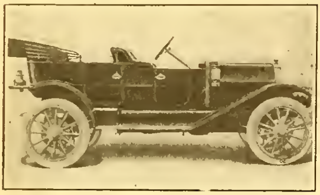

National "40" fore-door top tonneau

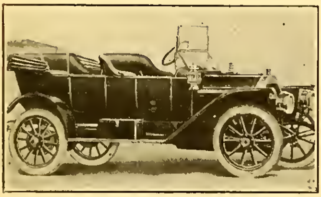
MIDLAND—Midland Motor Co., Moline, Ill.
MITCHELL—Mitchell-Lewis Motor Co., Racine, Wis.
MOLINE—Moline Automobile Co., East Moline, Ill.
MOON—Moon Motor Car Co., St. Louis, Mo.
NATIONAL—National Motor Vehicle Co., Indianapolis, Ind.

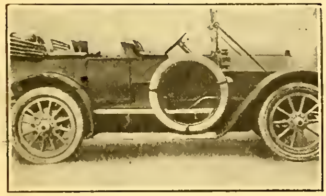
Don't ask the maker to kill harmony to suit you.

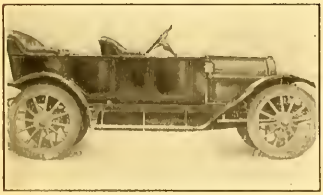
Don't forget that harmony must include a good relation of the machinery equipment.

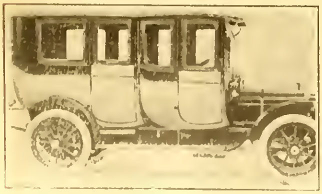
Details of Passenger Automobiles


Oakland Model K fore-door 5-passenger


Ohio "40" 4-passenger torpedo


Oldsmobile fore-door autocrat model


Overland Model 51


Packard "30" fore-door limousine

MAKE AND MODEL	Price	H.P. A.L.A.M.	BODY		MOTOR				COOLING		IGNITION		L[illegible]cation
			Type	Seats	Cyl.	Bore Inches	Stroke Inches	Cyl. Cast	Radiator	Pump	Magneto	Battery	
Oakland 33	$1200	25.6	Tour'g.	5	4	4	4	Pairs.	Tubular.	Cent'fl	H. T.	Dry	Splash.
Oakland 24	1000	25.6	R'bout.	2	4	4	4	Pairs.	Tubular.	Cent'fl	H. T.	Dry	Splash.
Oakland 25	1150	25.6	T. ton.	4	4	4	4	Pairs.	Tubular.	Cent'fl	H. T.	Dry	Splash.
Oakland K Special	1600	32.4	Tour'g.	5	4	2½	5	Pairs.	Tubular.	Cent'fl	H. T.	Dry	Splash.
Oakland M Special	1500	32.4	R'bout.	2	4	4½	5	Pairs.	Tubular.	Cent'fl	H. T.	Dry	Splash.
Ohio Forty L	2450	32.4	Torp'o.	5	4	4½	4¾	Pairs.	H'comb.	Cent'fl	H. T.	Dry	Splash.
Ohio Forty A	2150	32.4	Tour'g.	5	4	4½	4¾	Pairs.	H'comb.	Cent'fl	H. T.	Dry	Splash.
Ohio Forty K	2150	32.4	R'ster.	3	4	4½	4¾	Pairs.	H'comb.	Cent'fl	H. T.	Dry	Splash.
Ohio Forty B	2150	32.4	Coupe.	4	4	4½	4¾	Pairs.	H'comb.	Cent'fl	H. T.	Dry	Splash
Oldsmobile Special	3000	36.0	Tour'g.	7	4	4¾	4¾	Pairs.	H'comb.	Cent'fl	H. T.	Dry	Splash
Oldsmobile Special	3000	36.0	R'ster.	2	4	4¾	4¾	Pairs.	H'comb.	Cent'fl	H. T.	Dry	Splash.
Oldsmobile Special	3000	36.0	Cl. Coup	4	4	4¾	4¾	Pairs.	H'comb.	Cent'fl	H. T.	Dry	Splash.
Oldsmobile Special	4200	36.0	Limous.	7	4	4¾	4¾	Pairs.	H'comb.	Cent'fl	H. T.	Dry	Splash
Oldsmobile Autocrat	3500	40.0	Tour'g.	7	4	5	6	Pairs.	H'comb.	Cent'fl	H. T.	Dry	Splash.
Oldsmobile Autocrat	3500	40.0	Tour'g.	5	4	5	6	Pairs.	H'comb.	Cent'fl	H. T.	Dry	Splash
Oldsmobile Autocrat	3500	40.0	R'ster.	2	4	5	6	Pairs.	H'comb.	Cent'fl	H. T.	Dry	Splash
Olpsmobile Autocrat	3500	40.0	T'bout.	4	4	5	6	Pairs.	H'comb.	Cent'fl	H. T.	Dry	Splash
Oldsmobile Autocrat	5000	40.0	Limous.	7	4	5	6	Pairs.	H'comb.	Cent'fl	H. T.	Dry	Splash
Oldsmobile Limited	5000	60.0	Tour'g.	7	6	5	6	Pairs.	H'comb.	Cent'fl	H. T.	Dry	Splash
Oldsmobile Limited	5000	60.0	T'bout.	4	6	5	6	Pairs.	H'comb.	Cent'fl	H. T.	Dry	Splash
Oldsmobile Limited	5000	60.0	R'ster.	2	6	5	6	Pairs.	H'comb.	Cent'fl	H. T.	Dry	Splash
Oldsmobile Limited	7000	60.0	Limous.	7	6	5	6	Pairs.	H'comb.	Cent'fl	H. T.	Dry	Splash
Overland 38	1000	22.5	Any	4	4	3¾	4½	Single.	H'comb.	Syph'n	H. T.	Dry	Mech.
Overland 40	1200	28.9	R'bout.	4	4	4¼	4½	Single.	H'comb.	Syph'n	H. T.	Dry	Mech.
Overland 41	1300	28.9	[1]Tour'g.	5	4	4¼	4½	Single.	H'comb.	Syph'n	H. T.	Dry	Mech.
Overland 42	1400	28.9	Tour'g.	5	4	4¼	4½	Single.	H'comb.	Syph'n	H. T.	Dry	Mech.
Overland 45	775	19.6	R'bout.	2	4	3½	4½	Single.	H'comb.	Syph'n	H. T.	Dry	Mech.
Overland 46	850	19.6	Torp'o.	2	4	3½	4½	Single.	H'comb.	Syph'n	H. T.	Dry	Mech.
Overland 49	1095	22.5	Any	4	4	3¾	4½	Single.	H'comb.	Syph'n	H. T.	Dry	Mech.
Overland 50	1250	25.6	Torp'o.	2	4	4	4½	Single.	H'comb.	Syph'n	H. T.	Dry	Mech.
Overland 51	1250	25.6	Tour'g.	5	4	4	4½	Single.	H'comb.	Syph'n	H. T.	Dry	Mech.
Overland 52	1600	28.9	Tour'g.	5	4	4¼	4½	Single.	H'comb.	Syph'n	H. T.	Storage	Splash
Overland 53	1600	28.9	T'bout.	2	4	4¼	4½	Single.	H'comb.	Syph'n	H. T.	Storage	Splash
Overland 54	1675	28.9	T. ton.	4	4	4¼	4½	Single.	H'comb.	Syph'n	H. T.	Storage	Splash
Packard "18"	3200	26.5	Tour'g.	5	4	$4\frac{1}{16}$	5⅛	Pairs.	Cellular.	Cent'fl	H. T.	Storage	Pump.
Packard "18"	3200	26.5	C.coupl.	5	4	$4\frac{1}{16}$	5⅛	Pairs.	Cellular.	Cent'fl	H. T.	Storage	Pump.
Packard "18"	4400	26.5	Limous.	5	4	$4\frac{1}{16}$	5⅛	Pairs.	Cellular.	Cent'fl	H. T.	Storage	Pump.
Packard "18"	4600	26.5	F.d.Li.	5	4	$4\frac{1}{16}$	5⅛	Pairs.	Cellular.	Cent'fl	H. T.	Storage	Pump.
Packard "18"	4500	26.5	Land't.	5	4	$4\frac{1}{16}$	5⅛	Pairs.	Cellular.	Cent'fl	H. T.	Storage	Pump.
Packard "18"	4700	26.5	F.d.Ld.	5	4	$4\frac{1}{16}$	5⅛	Pairs.	Cellular.	Cent'fl	H. T.	Storage	Pump.
Packard "18"	3200	26.5	R'bout.	2	4	$4\frac{1}{16}$	5⅛	Pairs.	Cellular.	Cent'fl	H. T.	Storage	Pump.
Packard "18"	3900	26.5	Coupe.	2	4	$4\frac{1}{16}$	5⅛	Pairs.	Cellular.	Cent'fl	H. T.	Storage	Pump.
Packard "30"	4200	40.0	Tour'g.	7	4	5	5½	Pairs.	Cellular.	Cent'fl	H. T.	Storage	Pump.
Packard "30"	4200	40.0	C.coupl	5	4	5	5½	Pairs.	Cellular.	Cent'fl	H. T.	Storage	Pump.
Packard "30"	4200	40.0	Phaet.	5	4	5	5½	Pairs.	Cellular.	Cent'fl	H. T.	Storage	Pump.
Packard "30"	5450	40.0	Limous.	7	4	5	5½	Pairs.	Cellular.	Cent'fl	H. T.	Storage	Pump.
Packard "30"	5650	40.0	F.d.Li.	7	4	5	5½	Pairs.	Cellular.	Cent'fl	H. T.	Storage	Pump.
Packard "30"	5550	40.0	Land't.	7	4	5	5½	Pairs.	Cellular.	Cent'fl	H. T.	Storage	Pump.
Packard "30"	5750	40.0	F.d.Ld.	7	4	5	5½	Pairs.	Cellular.	Cent'fl	H. T.	Storage	Pump.
Packard "30"	4200	40.0	R'bout.	2	4	5	5½	Pairs.	Cellular.	Cent'fl	H. T.	Storage	Pump.
Packard "30"	4900	40.0	Coupe.	2	4	5	5½	Pairs.	Cellular.	Cent'fl	H. T.	Storage	Pump.
Palmer-Singer 6-60	4200	57.0	Tour'g.	7	6	4⅞	5½	Pairs.	H'comb.	Cent'fl	H. T.	Dry	F.feed.
Palmer-Singer 4-50	3500	48.4	Tour'g.	5	4	5½	5½	Pairs.	H'comb.	Cent'fl	H. T.	Dry	F.feed.
Palmer-Singer 6-40	3300	38.4	Tour'g.	5	6	4	4¾	Block.	H'comb.	Cent'fl	H. T.	Dry	F.feed
Palmer-Singer 6-40	4050	38.4	Limous	5	4	4	4¾	Block.	H'comb.	Cent'fl	H. T.	Dry	F.feed
Palmer-Singer 4-30	3750	28.9	Land't	5	4	4¼	4½	Pairs.	H'comb.	Cent'fl	H. T.	None	Pump.
Peerless "29"	4200	25.6	Limous	6	4	4	4⅝	Pairs.	Tubular.	Gear.	H. T.	Storage	Pump.
Peerless "29"	4300	25.6	Land't.	6	4	4	4⅝	Pairs.	Tubular.	Gear.	H. T.	Storage	Pump.
Peerless "31"	4300	40.0	Tour'g.	7	4	5	5½	Pairs.	Tubular.	Gear.	H. T.	Storage	Pump.
Peerless "31"	4300	40.0	C.coupl.	5	4	4	5½	Pairs.	Tubular.	Gear.	H. T.	Storage	Pump.
Peerless "31"	4300	40.0	R'ster.	5	4	5	5½	Pairs.	Tubular.	Gear.	H. T.	Storage	Pump.
Peerless "31"	4300	40.0	Phaet.	2	4	5	5½	Pairs.	Tubular.	Gear.	H. T.	Storage	Pump.
Peerless "31"	4300	40.0	T'ton.	4	4	5	5½	Pairs.	Tubular.	Gear.	H. T.	Storage	Pump.
Peerless "31"	4300	40.0	Torp'o.	4	4	5	5½	Pairs.	Tubular.	Gear.	H. T.	Storage	Pump.
Peerless "31"	5400	40.0	Limous.	7	4	5	5½	Pairs.	Tubular.	Gear.	H. T.	Storage	Pump.
Peerless "31"	5500	40.0	Land't.	7	4	5	5½	Pairs.	Tubular.	Gear.	H. T.	Storage	Pump.
Peerless "31"	4800	40.0	D.lim.	7	4	5	5½	Pairs.	Tubular.	Gear.	H. T.	Storage	Pump.
Peerless "32"	6000	60.0	Tour'g.	7	6	5	5½	Pairs.	Tubular.	Gear.	H. T.	Storage	Pump.
Peerless "32"	6000	60.0	C.coupl.	5	6	5	5½	Pairs.	Tubular.	Gear.	H. T.	Storage	Pump.
Peerless "32"	6000	60.0	R'ster.	5	6	5	5½	Pairs.	Tubular.	Gear.	H. T.	Storage	Pump.
Peerless "32"	6000	60.0	Phaet.	2	6	5	5½	Pairs.	Tubular.	Gear.	H. T.	Storage	Pump.
Peerless "32"	6000	60.0	P. ton.	4	6	5	5½	Pairs.	Tubular.	Gear.	H. T.	Storage	Pum
Peerless "32"	6000	60.0	Torp'o.	4	6	5	5½	Pairs.	Tubular.	Gear.	H. T.	Storage	Pur
Peerless "32"	7000	60.0	Limous.	7	6	5	5½	Pairs.	Tubular.	Gear.	H. T.	Storage	Pum
Peerless "32"	7100	60.0	Land't.	7	6	5	5½	Pairs.	Tubular.	Gear.	H. T.	Storage	Pump.
Peerless "32"	6500	60.0	D.lim.	7	6	5	5½	Pairs.	Tubular.	Gear.	H. T.	Storage	Pump.

[1] Or Close-coupled

OAKLAND—Oakland Motor Car Co., Pontiac, Mich.
OHIO—Ohio Motor Car Co., Carthage, O.
OLDSMOBILE—Olds Motor Works, Lansing, Mich.
OVERLAND—Willys-Overland Co., Toledo, O.

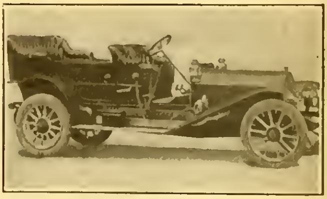
on the American Market for 1911

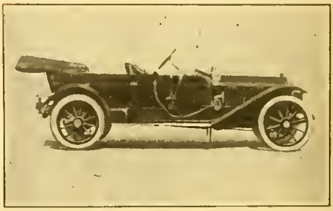
Clutch	TRANSMISSION				Wheelbase	Tread	Frame	BEARINGS			Weight	TIRES	
	Type	Speeds	Location	Drive				Crack-shaft	Trans-mis'n	Axle		Front	Rear
M. Disc.	Sel.	4	Unit	Shaft	100	56	Channel.	3 Plain.	B.&Pl.	R. & B.	1300	32x3½	32x3½
M. Disc.	Sel.	4	Unit	Shaft	96	56	Channel.	3 Plain.	B.&Pl.	R. & B.	1200	32x3½	32x3½
M. Disc.	Sel.	4	Unit	Shaft	96	56	Channel.	3 Plain.	B.&Pl.	R. & B.	1200	32x3½	32x3½
M. Disc.	Sel.	4	Unit	Shaft	112	56	Channel.	3 Plain.	B.&Pl.	R. & B.	2500	34x4	34x4
M. Disc.	Sel.	4	Unit	Shaft	112	56	Channel.	3 Plain.	B.&Pl.	R. & B.	2350	34x4	34x4
5 Pl. Disc.	Sel.	3	Unit	Shaft	115	56	P. Steel.	Plain.	Ball.	Ball.	2850	34x4	34x4
5 Pl. Disc.	Sel.	3	Unit	Shaft	115	56	P. Steel.	Plain.	Ball.	Ball.	2850	34x4	34x4
5 Pl. Disc.	Sel.	3	Unit	Shaft	115	56	P. Steel.	Plain.	Ball.	Ball.	2850	34x4	34x4
5 Pl. Disc.	Sel.	3	Unit	Shaft	115	56	P. Steel.	Plain.	Ball	Ball.	2850	34x4	34x4
Cone	Sel.	4	Unit	Shaft	118	56	P Steel.	Plain.	Plain.	Ball.	.....	36x4	36x4
Cone	Sel.	4	Unit	Shaft	118	56	P. Steel.	Plain.	Plain.	Ball.	.....	36x4	36x4
Cone	Sel.	4	Unit	Shaft	118	56	P. Steel.	Plain.	Plain.	Ball.	.....	36x4	36x4
Cone	Sel.	4	Unit	Shaft	118	56	P. Steel.	Plain.	Plain.	Ball.	.....	36x4	36x4
Cone	Sel.	4	Unit	Shaft	124	56	P. Steel.	Plain.	Roller.	Ball.	.....	38x4½	38x4½
Cone	Sel.	4	Unit	Shaft	124	56	P. Steel.	Plain.	Roller.	Ball.	.....	38x4½	38x4½
Cone	Sel.	4	Unit	Shaft	124	56	P. Steel.	Plain.	Roller.	Ball.	.....	38x4½	38x4½
Cone	Sel.	4	Unit	Shaft	124	56	P. Steel.	Plain.	Roller.	Ball.	.....	38x4½	38x4½
Cone	Sel.	4	Unit	Shaft	124	56	P. Steel.	Plain.	Roller.	Ball.	.....	38x4½	38x4½
Cone	Sel.	4	Unit	Shaft	138	56	P. Steel.	Plain.	Roller.	Ball.	.....	42x4½	42x4½
Cone	Sel.	4	Unit	Shaft	138	56	P. Steel.	Plain.	Roller.	Ball.	.....	42x4½	42x4½
Cone	Sel.	4	Unit	Shaft	138	56	P. Steel.	Plain.	Roller.	Ball.	.....	42x4½	42x4½
Cone	Sel.	4	Unit	Shaft	138	56	P. Steel.	Plain.	Roller.	Ball.	.....	42x4½	42x4½
M. Disc.	Plane.	2	Axle	Shaft	102	[2]56	P. Steel.	5 Plain.	Ball.	Ball.	.....	32x3½	32x3½
M. Disc.	Plane.	2	Axle	Shaft	112	[2]56	P. Steel.	5 Plain.	Ball.	Ball.	.....	34x3½	34x3½
M. Disc.	Plane.	2	Axle	Shaft	112	[2]56	P. Steel.	5 Plain.	Ball.	Ball.	.....	34x4	34x4
Cone	Sel.	3	Axle	Shaft	112	[2]56	P. Steel.	5 Plain.	Ball.	Ball.	.....	34x4	34x4
M. Disc.	Plane.	2	Axle	Shaft	96	56	P. Steel.	5 Plain.	Ball.	Ball.	.....	32x3	32x3
M. Disc.	Plane.	2	Axle	Shaft	96	56	P. Steel.	5 Plain.	Ball.	Ball.	.....	32x3	32x3
Cone	Sel.	3	Axle	Shaft	102	[2]56	P. Steel.	5 Plain.	Ball.	Ball.	.....	32x3½	32x3½
Cone	Sel.	3	Axle	Shaft	110	56	P. Steel.	5 Plain.	Ball.	Ball.	.....	34x3½	34x3½
Cone	Sel.	3	Axle	Shaft	110	[2]56	P. Steel.	5 Plain.	Ball.	Ball.	.....	34x3½	34x3½
Cone	Sel.	3	Axle	Shaft	118	[2]56	P. Steel.	5 Plain.	Ball.	Ball.	.....	34x4	34x4
Cone	Sel.	3	Axle	Shaft	118	56	P. Steel.	5 Plain.	Ball.	Ball.	.....	34x4	34x4
Cone	Sel.	3	Axle	Shaft	118	56	P. Steel.	5 Plain.	Ball	Ball.	.....	34x4	34x4
Plate	Sel.	3	Axle	Shaft	112	56½	P. Steel.	Plain.	Ball.	Ball.	3000	34x4	34x4
Plate	Sel.	3	Axle	Shaft	112	56½	P. Steel.	Plain.	Ball.	Ball.	3000	34x4	34x4
Plate	Sel.	3	Axle	Shaft	112	56½	P. Steel.	Plain.	Ball.	Ball.	3225	34x4	34x4
Plate	Sel.	3	Axle	Shaft	112	56½	P. Steel.	Plate.	Ball.	Ball.	3300	34x4	34x4
Plate	Sel.	3	Axle	Shaft	112	56½	P. Steel.	Plate.	Ball.	Ball.	3225	34x4	34x4
Plate	Sel.	3	Axle	Shaft	112	56½	P. Steel.	Plain.	Ball.	Ball.	3300	34x4	34x4
Plate	Sel.	3	Axle	Shaft	102	56½	P. Steel.	Plain.	Ball.	Ball.	2850	34x4	34x4
Plate	Sel.	3	Axle	Shaft	102	56½	P. Steel.	Plain.	Ball.	Ball.	3000	34x4	34x4
Plate	Sel.	3	Axle	Shaft	123½	56½	P. Steel.	Plain.	Ball.	Ball.	3650	36x4½	36x4½
Plate	Sel.	3	Axle	Shaft	123½	56½	P. Steel.	Plain.	Ball.	Ball.	3650	36x4½	36x4½
Plate	Sel.	3	Axle	Shaft	123½	56½	P. Steel.	Plain'.	Ball.	Ball.	3525	36x4½	36x4½
Plate	Sel.	3	Axle	Shaft	123½	56½	P. Steel.	Plain.	Ball.	Ball.	3825	36x4½	36x4½
Plate	Sel.	3	Axle	Shaft	123½	56½	P. Steel.	Plain.	Ball.	Ball.	3950	36x4½	36x4½
Plate	Sel.	3	Axle	Shaft	123½	56½	P. Steel.	Plain.	Ball.	Ball.	3825	36x4½	36x4½
Plate	Sel.	3	Axle	Shaft	123½	56½	P. Steel.	Plain.	Ball.	Ball.	3950	36x4½	36x4½
Plate	Sel.	3	Axle	Shaft	108	56½	P. Steel.	Plain.	Ball.	Ball.	3325	36x4½	36x4½
Plate	Sel.	3	Axle	Shaft	108	56½	P. Steel.	Plain.	Ball.	Ball.	3525	36x4½	36x4½
M. Disc.	Sel.	4	Unit	Shaft	138	56	P. Steel.	Plain.	Ball.	Ball.	3700	36x4	36x5
M. Disc.	Sel.	4	Unit	Shaft	129	56	P. Steel.	Plain.	Ball.	Ball.	3500	36x4	36x5.
M. Disc.	Sel.	4	Unit	Shaft	126	56	P. Steel.	Plain.	Ball.	Ball.	3400	36x4	36x4½
M. Disc.	Sel.	4	Unit	Shaft	120	56	P. Steel.	Plain.	Ball.	Ball.	3400	36x4	34x4
M. Disc.	Sel.	4	Unit	Shaft	120	56	P. Steel.	Plain.	Ball.	Ball.	3300	36x4	34x4
Exp. b'd.	Sel.	4	Unit	Shaft	113	56	P. Steel.	Plain.	Ball.	Ball.	.....	34x4½	34x4
Exp. b'd.	Sel.	4	Unit	Shaft	113	56	P. Steel.	Plain.	Ball.	Ball.	.....	34x4½	34x4½
Exp. b'd.	Sel.	4	Unit	Shaft	123	56	P. Steel.	Plain.	Ball.	Ball.	...	36x4	36x5
Exp. b'd.	Sel.	4	Unit	Shaft	123	56	P. Steel.	Plain.	Ball.	Ball.	.....	36x4	36x5
Exp. b'd.	Sel.	4	Unit	Shaft	119½	56	P. Steel.	Plain.	Ball.	Ball.	.....	36x4	36x5
Exp. b'd.	Sel.	4	Unit	Shaft	119½	56	P. Steel.	Plain.	Ball.	Ball	.....	36x4	36x5
Exp. b'd.	Sel.	4	Unit	Shaft	119½	56	P. Steel.	Plain.	Ball.	Ball	.....	36x4	36x5
Exp. b'd.	Sel.	4	Unit	Shaft	123	56	P Steel.	Plain.	Ball.	Ball.	.....	36x4	36x5
Exp. b'd.	Sel.	4	Unit	Shaft	123	56	P. Steel.	Plain.	Ball.	Ball.	.....	36x4	36x5
Exp. b'd.	Sel.	4	Unit	Shaft	123	56	P. Steel.	Plain.	Ball.	Ball.	.....	36x4	36x5
Exp. b'd.	Sel.	4	Unit	Shaft	123	56	P. Steel.	Plain.	Ball.	Ball.	.....	36x4	36x5
Exp. b'd.	Sel.	4	Unit	Shaft	136	56	P. Steel.	Plain.	Ball.	Ball.	.....	36x4½	37x5
Exp. b'd.	Sel.	4	Unit	Shaft	136	56	P. Steel.	Plain.	Ball.	Ball.	.....	36x4½	37x5
Exp. b'd.	Sel.	4	Unit	Shaft	132½	56	P. Steel.	Plain.	Ball.	Ball	.....	36x4½	37x5
[illegible] b'd.	Sel.	4	Unit	Shaft	132½	56	P. Steel.	Plain.	Ball.	Ball.	.....	36x4½	37x5
[illegible] b'd.	Sel	4	Unit	Shaft	132½	56	P. Steel.	Plain.	Ball.	Ball.	.....	36x4½	37x5
[illegible] b'd.	Sel.	4	Unit	Shaft	136	56	P. Steel.	Plain.	Ball.	Ball.	.....	36x4½	37x5
Exp. b'd	Sel.	4	Unit	Shaft	136	56	P. Steel.	Plain.	Ball.	Ball.	.....	36x4½	37x5
Exp. b'd.	Sel.	4	Unit	Shaft	136	56	P. Steel.	Plain.	Ball.	Ball.	.....	36x4½	37x5
Exp. b'd	Sel.	4	Unit	Shaft	136	56	P. Steel.	Plain.	Ball.	Ball.	.....	36x4½	37x5

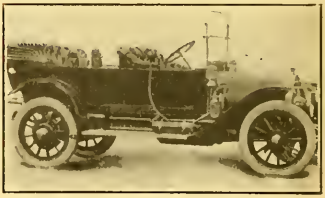
---

[2] Or 60 Inches.

PACKARD—Packard Motor Car Co., Detroit, Mich.
SINGER—Palmer & Singer Mfg. Co., 1620 Broadway, New York
PEERLESS—Peerless Motor Car Co., Cleveland, O.

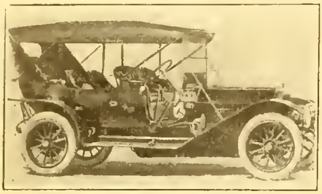

Palmer-Singer 6-60 touring car


Peerless torpedo type of touring car

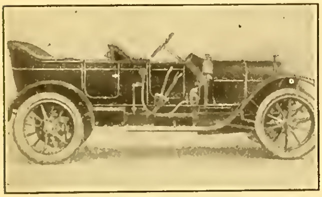

Rainier Model G 50 H. P. touring car

Royal Tourist fore-door touring car

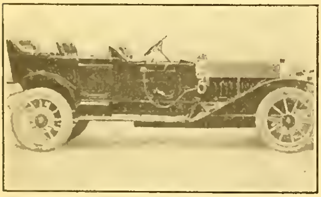
Sampson "35" torpedo



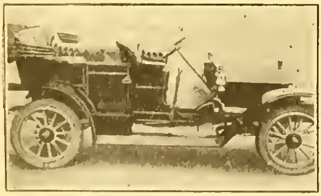
Pierce-Arrow 6-60 touring car



Pope-Hartford Model W touring car



Premier 7-passenger touring car



Pullman Model K touring car

Side view of the Regal "20" roadster

Details of Passenger Automobiles

MAKE AND MODEL	Price	H.P.A.L.A.M.	BODY		MOTOR				COOLING		IGNITION		cation
			Type	Seats	Cyl.	Bore Inches	Stroke Inches	Cyl. Cast	Radiator	Pump	Magneto	Battery	
Pierce-Arrow 36-T	$4000	38.4	Tour'g..	5	6	4	5⅛	Pairs..	H'comb..	Cent'fl	H. T...	Storage	Gravit
Pierce-Arrow 48-T	5000	48.6	Tour'g..	7	6	4½	5½	Pairs..	H'comb..	Cent'fl	H. T...	Storage	Grav't
Pierce-Arrow 66-T	6000	66.2	Tour'g..	7	6	5¼	5½	Pairs..	H'comb..	Cent'fl	H. T...	Storage	Grav't
Pope-Hartford	3000	36.1	Tour'g..	5	4	4¾	5½	Pairs..	Tubular.	Cent'fl	H. T...	....	Pump
Pope-Hartford	3000	36.1	P. ton..	4	4	4¾	5½	Pairs..	Tubular.	Cent'fl	H. T...	....	Pump
Pope-Hartford	3000	36.1	R'ster..	4	4	4¾	5½	Pairs..	Tubular.	Cent'fl	H. T...	....	Pump
Pope-Hartford	3000	36.1	Torp'o..	4	4	4¾	5½	Pairs..	Tubular.	Cent'fl	H. T...	....	Pump
Pope-Hartford	3250	36.1	Tour'g..	7	4	4¾	5½	Pairs..	Tubular.	Cent'fl	H. T..	....	Pump
Pope-Hartford	4150	36.1	Limous.	5	4	4¾	5½	Pairs..	Tubular.	Cent'fl	H. T...	....	Pump
Pope-Hartford	4150	36.1	Land't..	5	4	4¾	5½	Pairs..	Tubular.	Cent'fl	H. T...	....	Pump
Pope-Hartford	4000	44⅝	Tour'g..	7	6	$4\frac{5}{16}$	5⅜	Pairs..	Tubular.	Cent'fl	H. T...	....	Pump
Pope-Hartford	4000	44⅝	R'ster..	4	6	$4\frac{5}{16}$	5⅜	Pairs..	Tubular.	Cent'fl	H. T...	....	Pump
Pope-Hartford	4000	44⅝	P.ton...	4	6	$4\frac{5}{16}$	5⅜	Pairs..	Tubular.	Cent'fl	H. T...	....	Pump
Pope-Hartford	4000	44⅝	Torp'o..	4	6	$4\frac{5}{16}$	5⅜	Pairs..	Tubular.	Cent'fl	H. T...	....	Pump
Pope-Hartford	5150	44⅝	Limous	7	6	$4\frac{5}{16}$	5⅜	Pairs..	Tubular.	Cent'fl	H. T...	....	Pump
Pope-Hartford	5150	44⅝	Land't..	7	6	$4\frac{5}{16}$	5⅜	Pairs...	Tubular.	Cent'fl	H. T...	....	Pump
Premier 4-40	3000	32.6	[1]Tour'g.	4	4	4½	5¼	Pairs..	Cellular.	Cent'fl	H. T...	Dry....	Pump
Premier 4-40	3050	32.6	[1]Tour'g.	5	4	4½	5¼	Pairs..	Cellular..	Cent'fl	L. T....	None...	Pump
Premier 4-40	3100	32.6	[1]Tour'g.	7	4	4½	5¼	Pairs..	Cellular..	Cent'fl	L. T....	Dry....	Pump
Premier 4-40	4200	32.6	Limous	[2]5	4	4½	5¼	Pairs .	Cellular..	Cent'fl	H. T...	Dry....	Pump
Premier 4-40	2800	32.6	R'ster..	[3]2	4	4½	5¼	Pairs..	Cellular..	Cent'fl	H. T...	Dry....	Pump
Premier 6-60	3500	48.6	Club'm.	2	6	4½	5¼	Pairs..	Cellular..	Cent'fl	H. T...	Dry....	Pump
Premier 6-60	3600	48.6	R'ster..	3	6	4½	5¼	Pairs..	Cellular..	Cent'fl	L. T....	Dry....	Pump
Premier 6-60	3650	48.6	Tour'g..	7	6	4½	5¼	Pairs..	Cellular..	Cent'fl	L. T....	Dry....	Pump
Premier 6-60	5000	48.6	Limous.	7	6	4½	5¼	Pairs..	Cellular..	Cent'fl	H. T...	Dry....	Pump
Pullman O-11	1650	26.0	Tour'g..	4	4	$4\frac{1}{32}$	5	Pairs..	Tubular.	Cent'fl	H. T...	Storage	Pump
Pullman O-11	1650	26.0	R'ster..	3	4	$4\frac{1}{32}$	5	Pairs..	Tubular.	Cent'fl	H. T...	Storage	Pump
Pullman O-11	1650	26.0	T ton..	2	4	$4\frac{1}{32}$	5	Pairs..	Tubular.	Cent'fl	H. T...	Storage	Pump
Pullman M-11	3500	44.1	Tour'g .	7	4	5¼	6	Single.	Cellular..	Cent'fl	H. T...	Storage	Pump
Pullman M-11	3500	44.1	T. ton..	2	4	5¼	6	Single.	Cellular..	Cent'fl	H. T...	Storage	Pump
Pullman K-11	2000	32.4	Tour'g..	7	4	4½	4¾	Single.	Tubular.	Cent'fl	H. T...	Storage	Pump
Pullman K-11	2000	32.4	R'ster..	3	4	4½	4¾	Single.	Tubular.	Cent'fl	H. T...	Storage	Pump
Pullman K-11	2000	32.4	T. ton..	4	4	4½	4¾	Single.	Tubular.	Cent'fl	H. T...	Storage	Pump
Rainier H-7	.....	40.0	Torp'o..	4	4	5	5½	Pairs..	H'comb..	Sn Fan	H. T...	None...	Splash
Rainier H-4	.....	40.0	Torp'o..	4	4	5	5½	Pairs..	H'comb..	Sn Fan	H. T...	None...	Splasb
Rainier G	.....	40.0	Torp'o..	4	4	5	5½	Pairs..	H'comb..	Sn Fan	H. T...	None...	Splasb
Regal N	900	22.5	R'ster..	2	4	3¾	4½	Block	Tubular.	Th.-Si.	H. T...	Dry....	P. &
Regal Y	1250	25.6	Tour'g..	5	4	4	4	Pairs..	Tubular.	Th.-Si.	H. T...	Dry....	P. &
Regal S	1750	32.4	Tour'g..	7	4	4½	5	Pairs..	Tubular.	Th.-Si.	H. T...	Dry....	P. &
Reo R	1250	25.6	Tour'g..	5	4	4	4½	Pairs..	H'comb..	Cent'fl	H. T...	Dry....	F.feed
Reo S	1250	25.6	Tour'g..	5	4	4	4½	Pairs..	H'comb..	Cent'fl	H. T...	Dry....	F feed
Reo K	850	22.5	R'bout.	2	4	3¾	4¼	Pairs .	H'comb..	Cent'fl	H. T...	Dry....	F.feed
Royal Tourist M-3	4500	48.4	Option'l	..	4	5½	6	Pairs..	Tubular.	Cent'fl	H. T...	Storage	Pump
S. G. V. "A"	2500	22.5	Tour'g..	5	4	3¾	4⅜	Block.	Cellular..	Cent'fl	H. T...	None...	Pump
S.G.V. "B"	2500	22.5	R'bout.	2	4	3¾	4⅜	Block.	Cellular..	Cent'fl	H. T...	None...	Pump
Selden 40-R	2500	22.1	R'ster..	2	4	4¾	5	Pairs..	Tubular.	Cent'fl	H. T...	Storage	Splash
Selden 44	2500	36.1	F.d.Rr..	4	4	4¾	5	Pairs..	Tubular.	Cent'fl	H. T...	Storage	Splash
Selden 46	2600	36.1	F.d.Tg..	6	4	4¾	5	Pairs..	Tubular.	Cent'fl	H. T...	Storage	Splash
Selden 40-S	2600	36.1	F.d.Tg..	7	4	4¾	5	Pairs..	Tubular.	Cent'fl	H. T...	Storage	Splash
Selden 40-T	2250	36.1	Tour'g..	5	4	4¾	5	Pairs..	Tubular.	Cent'fl	H. T...	Storage	Splash
Simplex 1910	4450	53.0	Extra..	..	4	5¾	5¾	Pairs..	H'comb.	Cent'fl	H. T...	None...	Mech..
Simplex 1910	4450	53.0	Extra .	..	4	5¾	5¾	Pairs..	H'comb..	Cent'fl	H. T...	None ..	Mech..
Simplex 1910	5300	59.5	Extra .	..	4	6.1	5¾	Pairs..	H'comb..	Cent'fl	H. T...	None...	Mech.
Speedwell 11-H	2500	40.0	F.d.Rr..	2	4	5	5	Pairs..	H'comb..	Cent'fl	H. T...	Storage	Pump
Speedwell 11-C	2625	40.0	T ton..	4	4	5	5	Pairs..	H'comb..	Cent'fl	H. T...	Storage	Pump
Speedwell 11-D	2650	40.0	Tour'g..	5	4	5	5	Pairs..	H'comb..	Cent'fl	H. T...	Storage	Pump
Speedwell 11-K	2650	40.0	C coupl.	5	4	5	5	Pairs..	H'comb..	Cent'fl	H. T...	Storage	Pump
Speedwell 11-G	2700	40.0	Torp'o..	4	4	5	5	Pairs..	H'comb..	Cent'fl	H. T...	Storage	Pump.
Speedwell 11-H Special	2700	40.0	S rac'g	4	4	5	5	Pairs..	H'comb .	Cent'fl	H. T...	Storage	Pump
Speedwell 11-D Special	2750	40.0	F.d.Tg..	5	4	5	5	Pairs..	H'comb..	Cent'fl	H. T...	Storage	Pump
Speedwell 11-F	2800	40.0	Tour'g..	7	4	5	5	Pairs..	H'comb..	Cent'fl	H. T...	Storage	Pump
Speedwell 11-F Special	2900	40.0	F.d.Tg..	7	4	5	5	Pairs..	H'comb..	Cent'fl	H. T...	Storage	Pump
Speedwell 11-E	3850	40.0	Limous.	7	4	5	5	Pairs..	H'comb..	Cent'fl	H. T...	Storage	Pump
Speedwell Cruiser	3500	40.0	Crusier.	4	4	5	5	Pairs..	H'comb..	Cent'fl	H T...	Storage	Pump

[1] Touring Clubman.

[2] Or 6 or 7

PIERCE-ARROW—Pierce-Arrow Motor Car Co., Buffalo, N. Y.
POPE-HARTFORD—The Pope Mfg. Co., Hartford, Conn.
PREMIER—Premier Motor Mfg. Co., Indianapolis, Ind.
PULLMAN—Pullman Motor Car Co., York, Pa.
RAINIER—Marquette Motor Co., Saginaw, Mich.
REGAL—Regal Motor Car Co., Detroit, Mich.

Don't overlook the importance of a good lighting system.
Don't decline to accept the windshield and top with the car.

on the American Market for 1911

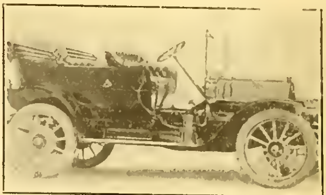
Clutch	TRANSMISSION				Wheelbase	Tread	Frame	BEARINGS			Weight	TIRES	
	Type	Speeds	Location	Drive				Crankshaft	Trans-mis'n	Axle		Front	Rear
Cone	Sel.	4	Unit	Shaft	125	55	Chan. St.	Plain	Ball	B & R.	3380	36x4½	36x4½
Cone	Sel.	4	Unit	Shaft	134½	56	Chan. St.	Plain	Ball	B. & R.	4120	36x4½	37x5
Cone	Sel.	4	Unit	Shaft	140	56	Chan. St.	Plain	Ball	B. & R.	4500	37x5	38x5½
Cone	Sel.	4	Unit	Shaft	124	56	Chan. St.	Plain	Plain	Roller	.....	4½	4½
Cone	Sel.	4	Unit	Shaft	124	56	Chan. St.	Plain	Plain	Roller	.....	4½	4½
Cone	Sel.	4	Unit	Shaft	124	56	Chan. St	Plain	Plain	Roller	.....	4½	4½
Cone	Sel.	4	Unit	Shaft	124	56	Chan. St.	Plain	Plain	Roller	.....	4½	4½
Cone	Sel.	4	Unit	Shaft	124	56	Chan. St	Plain	Plain	Roller	.....	4½	5
Cone	Sel.	4	Unit	Shaft	124	56	Chan. St.	Plain	Plain	Roller	.....	4½	5
Cone	Sel.	4	Unit	Shaft	124	56	Chan. St.	Plain	Plain	Roller	.....	4½	5
Cone	Sel.	4	Unit	Shaft	134	56	Chan. St.	Plain	Plain	Roller	.....	38x4½	39x5
Cone	Sel.	4	Unit	Shaft	134	56	Chan. St.	Plain	Plain	Roller	.....	38x4½	39x5
Cone	Sel.	4	Unit	Shaft	134	56	Chan. St.	Plain	Plain	Roller	.....	38x4½	39x5
Cone	Sel.	4	Unit	Shaft	134	56	Chan. St.	Plain	Plain	Roller	.....	38x4½	39x5
Cone	Sel.	4	Unit	Shaft	134	56	Chan. St.	Plain	Plain	Roller	.....	38x4½	39x5
Cone	Sel.	4	Unit	Shaft	134	56	Chan. St.	Plain	Plain	Roller	.....	38x4½	39x5
M. Disc	Sel.	3	Motor	Shaft	126	56½	P. Steel	3 Plain	5 Ball	B. & R.	.....	36x4½	36x4½
M. Disc	Sel.	3	Motor	Shaft	126	56½	P. Steel	3 Plain	5 Ball	B. & R.	.....	36x4½	36x4½
M. Disc	Sel.	3	Motor	Shaft	126	56½	P. Steel	3 Plain	5 Ball	B. & R.	.....	36x4½	36x4½
M. Disc	Sel.	3	Motor	Shaft	126	56½	P. Steel	3 Plain	5 Ball	B. & R	.....	36x4½	36x4½
M. Disc	Sel.	3	Motor	Shaft	126	56½	P. Steel	3 Plain	5 Ball	B. & R.	.....	36x4½	36x4½
M. Disc	Sel.	3	Motor	Shaft	140	56½	P. Steel	4 Plain	5 Ball	B. & R.	.....	36x4½	36x5
M. Disc	Sel.	3	Motor	Shaft	140	56½	P. Steel	4 Plain	5 Ball	B. & R	.....	36x4½	36x5
M. Disc	Sel.	3	Motor	Shaft	140	56½	P. Steel	4 Plain	5 Ball	B & R.	.....	36x4½	36x5
M. Disc	Sel.	3	Motor	Shaft	140	56½	P. Steel	4 Plain	5 Ball	B. & R.	.....	36x4½	36x5
Cone	Sel.	3	Unit	Shaft	110	56	P. Steel	3 Plain	Ball	Ball	.....	34x1	34x4
Cone	Sel.	3	Unit	Shaft	110	56	P. Steel	3 Plain	Ball	Ball	.....	34x4	34x4
Cone	Sel.	3	Unit	Shaft	110	56	P. Steel	3 Plain	Ball	Ball	.....	34x4	34x4
Cone	Sel.	4	Unit	Shaft	126	56	P. Steel	5 Plain	Ball	Ball	.....	36x4½	36x4½
Cone	Sel.	4	Unit	Shaft	126	56	P. Steel	5 Plain	Ball	Ball	.....	36x4½	36x4½
Cone	Sel.	3	Unit	Shaft	114	56	P Steel	5 Plain	Ball	Roller	.....	34x4	34x4
Cone	Sel.	3	Unit	Shaft	114	56	P. Steel	5 Plain	Ball	Roller	.....	34x4	34x4
Cone	Sel.	3	Unit	Shaft	114	56	P. Steel	5 Plain	Ball	Roller	.....	34x4	34x4
M. Disc	Sel.	4	Motor	Shaft	119	56	P. Steel	Plain	Ball	Ball	3500	36x4½	36x4½
M. Disc	Sel.	4	Motor	Shaft	119	56	P. Steel	Plain	Ball	Ball	3500	36x4½	36x4½
M. Disc	Sel.	4	Motor	Shaft	119	56	P. Steel	Plain	Ball	Ball	3500	36x4½	36x4½
Cone	Sel.	3	Axle	Shaft	100	56	P. Steel	Plain	Roller	Roller	.....	32x3	32x3
Cone	Sel.	3	Axle	Shaft	110	56	P Steel	Plain	Roller	Roller	.....	32x4	33x4
Cone	Sel.	3	Axle	Shaft	123	56	P. Steel	Plain	Roller	Roller	.....	34x4	34x4
M. Disc	Sel.	3	Unit	Shaft	108	[4]56	P. Steel	Plain	Ball	Roller	2350	34x3½	34x3½
M. Disc	Sel.	3	Unit	Shaft	108	[4]56	P. Steel	Plain	Ball	Roller	2300	34x3½	34x3½
M. Disc	Sel.	2	Axle	Shaft	98	[4]56	P. Steel	Plain	Ball	Roller	1650	32x3½	32x3½
Cone	Sel.	4	Unit	Shaft	126	56	N. Steel	Plain	Ball	Roller	3800	36x4½	36x5
Disc	Sel.	4	Unit	Shaft	115¾	56	P. Steel	Plain	Ball	Ball	2500	34x4	34x4
Disc	Sel.	4	Unit	Shaft	115¾	56	P. Steel	Plain	Ball	Ball	2500	34x4	34x4
Cone	Sel.	3	S Frame	Shaft	125	56	P. Steel	3 Plain	Roller	Line	2700	36x4	36x4
Cone	Sel.	3	S. Frame	Shaft	125	56	P. Steel	3 Plain	Roller	Line	3000	36x4	36x4
Cone	Sel.	3	S Frame	Shaft	125	56	P. Steel	3 Plain	Roller	Line	3100	36x4	36x4
Cone	Sel.	3	S. Frame	Shaft	122	56	P. Steel	3 Plain	Roller	Line	3000	36x4	36x4½
Cone	Sel.	3	S. Frame	Shaft	116	56	P. Steel	3 Plain	Roller	Line	2900	34x4	34x4
M. Disc	Sel.	4	Unit	2 Chain	124	56	P. Steel	P. & B.	Ball	Ball	.....	36x4	36x5
M. Disc	Sel.	4	Unit	2 Chain	129	56	P. Steel	P. & B.	Ball	Ball	.....	36x4	36x5
M. Disc	Sel.	4	Unit	2 Chain	124	56	P. Steel	P. & B.	Ball	Ball	.....	34x4	34x5
Cone	Sel.	3	Unit	Shaft	121	56	P. Steel	Plain	Roller	Roller	.....	36x4	36x4
Cone	Sel.	3	Unit	Shaft	121	56	P. Steel	Plain	Roller	Roller	.....	36x4	36x4
Cone	Sel.	3	Unit	Shaft	121	56	P. Steel	Plain	Roller	Roller	.....	36x4	36x4
Cone	Sel.	3	Unit	Shaft	121	56	P. Steel	Plain	Roller	Roller	.....	36x4	36x4
Cone	Sel.	3	Unit	Shaft	121	56	P. Steel	Plain	Roller	Roller	.....	36x4	36x4
Cone	Sel.	3	Unit	Shaft	121	56	P. Steel	Plain	Roller	Roller	.....	36x4	36x4
Cone	Sel.	3	Unit	Shaft	121	56	P Steel	Plain	Roller	Roller	.....	36x4	36x4
Cone	Sel.	3	Unit	Shaft	121	56	P Steel	Plain	Roller	Roller	.....	36x4½	36x4½
Cone	Sel.	3	Unit	Shaft	121	56	P. Steel	Plain	Roller	Roller	.....	36x4½	36x4½
Cone	Sel.	3	Unit	Shaft	121	56	P. Steel	Plain	Roller	Roller	.....	36x4½	36x4½
Cone	Sel.	3	Unit	Shaft	132	56	P. Steel	Plain	Roller	Roller	.....	36x4½	36x4½

[3] Or 3.

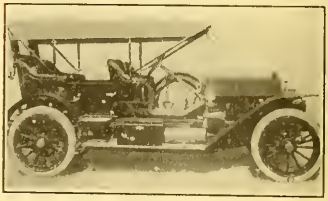
[4] Or 60 inches.

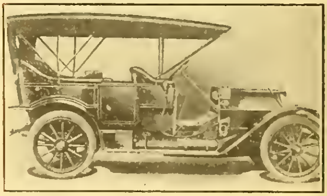
REO—Reo Motor Car Co., Lansing, Mich.
ROYAL TOURIST—Royal Tourist Car Co., Cleveland, O.
S. G. V.—Acme Motor Car Co., Reading, Pa.
SIMPLEX—Simplex Automobile Co., 614 East Eighty-third Street, New York.
SPEEDWELL—Speedwell Motor Car Co., Dayton, O.
SELDEN—Selden Motor Vehicle Co., Rochester, N. Y.

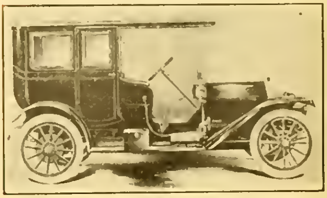
Don't omit a good signal system with the equipment.


Reo Model "R" touring car

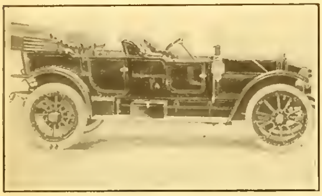
Selden Model "44" flush-sided touring


Simplex 50 H. P. toy tonneau

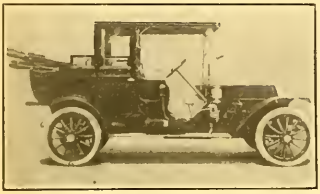

Speedwell Model 11-F touring car


National "40" 7-passenger limousine

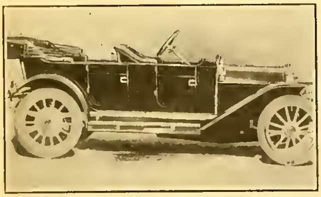
Details of Passenger Automobiles



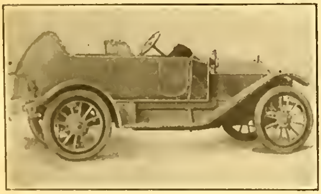
Stearns 30-60 H. P. vestibule touring car



Stevens-Duryea Model AA 35 H. P. landaulette.



Stoddard Dayton "40" 11-A fore-door touring



Studebaker-Garford "40" torpedo

Thomas "Flyer," 4-28 town car brougham

MAKE AND MODEL	Price	H.P.A.L.A.M.	BODY		MOTOR				COOLING		IGNITION		Lubrication
			Type	Seats	Cyl.	Bore Inches	Stroke Inches	Cyl. Cast	Radiator	Pump	Magneto	Battery	
Stearns 15-30	$3200	32.4	Tour'g..	5	4	4½	4¾	Block.	Cellular..	Cent 'fl	H. T...	Storage	Pump..
Stearns 15-30	3200	32.4	T.ton...	4	4	4½	4¾	Block.	Cellular..	Cent 'fl	H. T...	Storage	Pump..
Stearns 15-30	4600	32.4	Land't..	7	4	4½	4¾	Block.	Cellular..	Cent 'fl	H. T...	Storage	Pump..
Stearns 15-30	4600	32.4	Limous	7	4	4½	4¾	Block.	Cellular .	Cent 'fl	H. T...	Storage	Pump..
Stearns 30-60	4600	46.0	Tour'g.	7	4	5⅜	5⅞	Pairs..	Cellular..	Cent 'fl	H. T...	Storage	Pump..
Stearns 30-60	4600	46.0	T. ton..	4	4	5⅜	5⅞	Pairs..	Cellular..	Cent 'fl	H. T...	Storage	Pump..
Stearns 30-60	5850	46.0	Land't..	7	4	5⅜	5⅞	Pairs..	Cellular .	Cent 'fl	H. T...	Storage	Pump .
Stearns 30-60	5750	46.0	Limous.	7	4	5⅜	5⅞	Pairs .	Cellular..	Cent 'fl	H T...	Stoarge	Pump..
Stearns 30-60	4600	46.0	Tour'g..	7	4	5⅜	5⅞	Pairs..	Cellular..	Cent 'fl	H. T...	Storage	Pump .
Stearns 30-60	4600	46.0	T. ton..	4	4	5⅜	5⅞	Pairs..	Cellular..	Cent 'fl	H. T...	Storage	Pump..
Stearns 30-60	5850	46.0	Land't..	7	4	5⅜	5⅞	Pairs..	Cellular..	Cent 'fl	H. T...	Storage	Pump..
Stearns 30-60	5750	46.0	Limous.	7	4	5⅜	5⅞	Pairs..	Cellular..	Cent 'fl	H. T...	Storage	Pump..
Stevens-Duryea "AA"	3500	43.8	F.d.Tg..	5	6	4½	4¾	Pairs..	Cellular..	Cent 'fl	H. T...	Storage	F. feed.
Stevens-Duryea "AA"	3500	43.8	Tour'g..	5	6	4½	4¾	Pairs..	Cellular..	Cent 'fl	H. T...	Storage	F. feed.
Stevens-Duryea "AA"	3500	43.8	Tg Rr..	4	6	4½	4¾	Pairs..	Cellular..	Cent 'fl	H. T...	Storage	F' feed.
Stevens-Duryea "AA"	3600	43.8	Torp'o..	5	6	4½	4¾	Pairs..	Cellular..	Cent 'fl	H. T...	Storage	F. feed.
Stevens-Duryea "AA"	4600	43.8	Limous.	7	6	4½	4¾	Pairs..	Cellular..	Cent 'fl	H. T...	Storage	F. feed.
Stevens-Duryea "AA"	4800	43.8	Land't.	7	6	4½	4¾	Pairs..	Cellular..	Cent 'fl	H. T...	Storage	F feed.
Stevens-Duryea "Y"	4000	54.1	Tour'g..	7	6	4¾	4½	Pairs..	Cellular..	Cent 'fl	H. T...	Storage	F. feed.
Stevens-Duryea "Y"	4150	54.1	F.d.Tg .	7	6	4¾	4½	Pairs..	Cellular..	Cent 'fl	H. T...	Storage	F. feed.
Stevens-Duryea "Y"	5150	54.1	Limous.	7	6	4¾	4½	Pairs..	Cellular..	Cent 'fl	H. T...	Storage	F. feed.
Stevens-Duryea "X"	2850	24.0	Tour'g..	5	4	4¾	4½	Pairs..	Cellular..	Cent 'fl	H. T...	Dry....	F. feed.
Stevens-Duryea "X"	2850	24.0	Tg.Rr..	4	4	4¾	4½	Pairs..	Cellular..	Cent 'fl	H. T...	Dry....	F. feed.
Stevens-Duryea "X"	3000	24.0	F.d.Tg..	5	4	4¾	4½	Pairs..	Cellular..	Cent 'fl	H. T...	Dry....	F. feed.
Stevens-Duryea "X"	4000	24.0	Limous.	7	4	4¾	4½	Pairs..	Cellular..	Cent 'fl	H. T...	Dry....	F. feed.
Stoddard-Dayton—													
"50" 11-F	4000	40.0	Limous.	7	4	5	5½	Pairs..	Tubular.	Cent 'fl	H. T...	Storage	Pump..
"50" 11-F	4200	40.0	F.d.Li..	7	4	5	5½	Pairs..	Tubular.	Cent 'fl	H. T...	Storage	Pump..
"50" 11-F	4000	40.0	Land't.	7	4	5	5½	Pairs..	Tubular.	Cent 'fl	H. T...	Storage	Pump..
"50" 11-F	3000	40.0	Tour'g .	5	4	5	5½	Pairs..	Tubular.	Cent 'fl	H. T...	Storage	Pump..
"50" 11-K	3000	40.0	Torp'o .	5	4	5	5½	Pairs..	Tubular.	Cent 'fl	H. T...	Storage	Pump..
"50" 11-K	2950	40.0	S. T'do.	2	4	5	5½	Pairs..	Tubular.	Cent 'fl	H. T...	Storage	Pump..
"50" 11-K	2900	40.0	Tg. Rr..	5	4	5	5½	Pairs..	Tubular.	Cent 'fl	H. T...	Storage	Pump..
"50" 11-K	2900	40.0	B. ton .	4	4	5	5½	Pairs..	Tubular.	Cent 'fl	H. T...	Storage	Pump..
"50" 11-K	2850	40.0	R'ster..	2	4	5	5½	Pairs..	Tubular.	Cent 'fl	H. T...	Storage	Pump..
"50" 11-S	2800	40.0	S'ster. .	2	4	5	5½	Pairs..	Tubular.	Cent 'fl	H. T...	Storage	Pump..
"40" 11-A	2300	36.1	Tour'g..	5	4	4¾	5	Pairs..	Tubular.	Cent 'fl	H. T...	Storage	Pump..
"40" 11-A	2400	36.1	F.d.Tg..	5	4	4¾	5	Pairs..	Tubular.	Cent 'fl	H. T...	Storage	Pump..
"40" 11-C	2300	36.1	Tg.Rr..	5	4	4¾	5	Pairs..	Tubular.	Cent 'fl	H. T...	Storage	Pump..
"40" 11-C	2300	36.1	B.ton...	4	4	4¾	5	Pairs..	Tubular.	Cent 'fl	H. T...	Storage	Pump..
"40" 11-C	2350	36.1	Torp'o..	4	4	4¾	5	Pairs..	Tubular.	Cent 'fl	H. T...	Storage	Pump..
"40" 11-C	2275	36.1	S.ton...	2	4	4¾	5	Pairs..	Tubular.	Cent 'fl	H. T...	Storage	Pump..
"40" 11-C	2200	36.1	R'ster..	2	4	4¾	5	Pairs..	Tubular.	Cent 'fl	H. T...	Storage	Pump..
"30" 11-T	2700	27.2	Limous.	5	4	4⅛	5¼	Pairs..	Tubular.	Cent 'fl	H. T...	Storage	Pump..
"30" 11-T	2700	27.2	Land't..	5	4	4⅛	5¼	Pairs..	Tubular.	Cent 'fl	H. T...	Storage	Pump..
"30" 11-T	2350	27.2	Coupe..	3	4	4⅛	5¼	Pairs..	Tubular.	Cent 'fl	H. T...	Storage	Pump..
"30" 11-B	1700	27.2	Tour'g..	5	4	4⅛	5¼	Pairs..	Tubular.	Cent 'fl	H. T....	Storage	Pump..
"30" 11-B	1750	27.2	F.d.Tg..	5	4	4⅛	5¼	Pairs..	Tubular.	Cent 'fl	H. T...	Storage	Pump..
"30" 11-H	1550	27.2	R'ster..	2	4	4⅛	5¼	Pairs..	Tubular.	Cent 'fl	H. T...	Storage	Pump..
"20" 11-R-1	1175	25.6	R'ster..	2	4	4	4½	Block.	Tubular.	Cent 'fl	H. T...	Storage	Pump..
"20" 11-L-4	1250	25.6	Tg.Rr..	4	4	4	4½	Block.	Tubular.	Cent 'fl	H. T...	Storage	Pump..
"20" 11-M	1275	25.6	Tour'g..	5	4	4	4½	Block.	Tubular.	Cent 'fl	H. T...	Storage	Pump..
Studebaker-Garf'd G8	4750	36.1	Limous.	7	4	4¾	5½	Pairs..	H'comb..	Cent 'fl	L. T....	Storage	F. feed..
Studebaker-Garf'd G8	3500	36.1	Tour'g..	7	4	4¾	5½	Pairs..	H'comb..	Cent 'fl	L. T....	Storage	F. feed..
Studebaker-Garf'd G10	3500	28.9	1 Tour.	5	4	4¼	5½	Pairs..	H'comb..	Cent 'fl	L. T....	Storage	F. feed.
Studebaker Garf'd A	2250	25.6	Chassis.	..	4	4	3¾	Pairs..	Tubular.	Cent 'fl	L. T....	Storage	Splash..
Studebaker-Garf'd B	2850	36.1	Chassis.	..	4	4¾	5½	Pairs..	Tubular.	Cent 'fl	L. T....	Storage	F. feed.
Studebaker Garf'd C	3250	36.1	Chassis.	..	4	4¾	5½	Pairs..	Tubular.	Cent 'fl	L. T....	Storage	F. feed.
Thomas K	6000	72.6	Tour'g..	7	6	5½	5½	Single.	H'comb..	Gear..	H. T...	Dry....	Mech...
Thomas K	6000	72.6	Fly'b't.	4	6	5½	5½	Single.	H'comb..	Gear..	H. T...	Dry....	Mech...
Thomas K	6000	72.6	T'bout..	[1]	6	5½	5½	Single.	H'comb..	Gear..	H. T...	Dry....	Mech....
Thomas K	3500	72.6	Limous.	7	6	5½	5½	Single.	H'comb..	Gear..	H T...	Dry....	Mech...
Thomas K	7600	72.6	Land't..	7	6	5½	5½	Single.	H'comb..	Gear..	H. T...	Dry....	Mech...
Thomas M	3750	43.8	Tour'g..	5	6	4½	5½	Pairs..	H'comb..	Cent 'fl	H. T...	Dry....	Mech...
Thomas M	3900	43.8	F.dTg..	5	6	4½	5½	Pairs..	H'comb..	Cent 'fl	H. T...	Dry....	Mech...
Thomas M	3850	43.8	Tour'g..	7	6	4½	5½	Pairs..	H'comb..	Cent 'fl	H. T...	Dry....	Mech...
Thomas M	4000	43.8	F.d.Tg..	7	6	4½	5½	Pairs..	H'comb..	Cent 'fl	H. T...	Dry....	Mech...
Thomas M	3750	43.8	F'bout..	4	6	4½	5½	Pairs..	H'comb..	Cent 'fl	H T...	Dry....	Mech...
Thomas M	3900	43.8	F.d.F.t.	4	6	4½	5½	Pairs..	H.comb..	Cent 'fl	H T...	Dry....	Mech...
Thomas M	3750	43.8	Tour'g..	4	6	4½	5½	Pairs..	H'comb..	Cent 'fl	H. T...	Dry....	Mech...
Thomas M	5000	43.8	Limous.	7	6	4½	5½	Pairs..	H'comb .	Cent 'fl	H. T...	Dry....	Mech...
Thomas M	5100	43.8	Land't..	7	6	4½	5½	Pairs..	H'comb..	Cent 'fl	H T...	Dry....	Mech...
Thomas R	4000	28.0	Brougm	6	4	4½	5½	Pairs..	H'comb..	Cent 'fl	H. T...	Dry....	Mech.
Thomas R	4100	28.0	Limous.	6	4	4½	5½	Pairs..	H'comb..	Cent 'fl	H. T...	Dry....	Mech
Thomas R	4750	28.0	Land't..	6	4	4½	5½	Pairs..	H'comb..	Cent 'fl	H T..	Dry....	Mech.

[1] 2, 3 or 4.

STEARNS—F. B. Stearns Co., Cleveland, O.
STEVENS-DURYEA—Stevens-Duryea Co., Chicopee Falls, Mass.
STODDARD-DAYTON—Dayton Motor Car Co., Dayton, O.

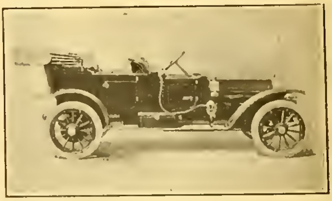
Don't disregard the instructions of the demonstrator and the fact that you should become acquainted with the oiling system of the car that you purchase.

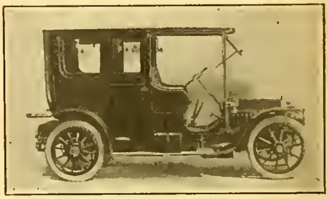
on the American Market for 1911

Clutch	TRANSMISSION				Wheelbase	Tread	Frame	BEARINGS			Weight	TIRES	
	Type	Speeds	Loca-tion	Drive				Crank-shaft	Trans-mis'n	Axle		Front	Rear
M. Disc...	Sel....	3	Axle....	Shaft....	116	56½	P. Steel..	Ball....	Ball...	Roller..	3000	34x4	34x4
M. Disc...	Sel....	3	Axle....	Shaft....	116	56½	P. Steel..	Ball....	Ball...	Roller...	2800	34x4	34x4
M. Disc...	Sel....	3	Axle....	Shaft....	116	56½	P. Steel..	Ball....	Ball...	Roller...	3500	34x4	34x4
M. Disc...	Sel....	3	Axle....	Shaft....	116	56½	P. Steel..	Ball....	Ball...	Roller...	3500	34x4	34x4
M. Disc...	Sel....	4	Unit....	Chain...	124	56½	P. Steel..	Ball ...	Ball...	Roller...	3800	36x4	36x5
M. Disc...	Sel....	4	Unit....	Chain...	121	56½	P. Steel..	Ball....	Ball...	Roller...	3600	36x4	36x4½
M. Disc...	Sel....	4	Unit....	Chain...	124	56½	P. Steel..	Ball....	Ball...	Roller...	4300	36x4	36x5
M. Disc...	Sel....	4	Unit....	Chain...	124	56½	P. Steel..	Ball....	Ball...	Roller ..	4300	36x4	36x5
M Disc...	Sel....	4	Unit....	Shaft....	124	56½	P. Steel..	Ball....	Ball...	Roller...	3800	36x4	36x5
M. Disc...	Sel....	4	Unit....	Shaft....	121	56½	P. Steel..	Ball....	Ball...	Roller...	3600	36x4	36x4½
M. Disc...	Sel....	4	Unit....	Shaft....	124	56½	P. Steel..	Ball....	Ball...	Roller...	4300	36x4	36x5
M. Disc...	Sel....	4	Unit....	Shaft....	124	56½	P. Steel..	Ball....	Ball...	Roller...	4300	36x4	36x5
M. Disc...	Sel....	3	Motor...	Shaft....	128	56	Chr.-N...	Plain...	Ball...	Ball....	3350	36x4½	36x4½
M. Disc...	Sel....	3	Motor...	Shaft....	128	56	Chr.-N...	Plain...	Ball...	Ball....	3300	36x4½	36x4½
M. Disc. .	Sel....	3	Motor...	Shaft....	128	56	Chr.-N...	Plain...	Ball ..	Ball....	3250	36x4½	36x4½
M. Disc...	Sel....	3	Motor...	Shaft....	128	56	Chr.-N...	Plain...	Ball...	Ball ...	3350	36x4½	36x4½
M. Disc...	Sel....	3	Motor...	Shaft....	128	56	Chr.-N...	Plain...	Ball...	Ball....	3600	36x4½	36x4½
M. Disc...	Sel....	3	Motor...	Shaft....	128	56	Chr.-N...	Plain ..	Ball...	Ball....	3550	36x4½	36x4½
M. Disc...	Sel....	3	Motor...	Shaft....	142	56	Chr.-N...	Plain...	Ball...	Ball....	3450	36x4	36x5
M. Disc...	Sel....	3	Motor...	Shaft....	142	56	Chr.-N...	Plain...	Ball...	Ball....	3500	36x4	36x5
M. Disc...	Sel ...	3	Motor...	Shaft....	142	56	Chr.-N...	Plain...	Ball...	Ball....	3800	36x4	36x5
M. Disc...	Sel....	3	Motor...	Shaft....	124	56	Chr.-N...	Plain...	Ball...	Ball....	2700	34x4	34x4
M. Disc...	Sel....	3	Motor...	Shaft....	124	56	Chr.-N...	Plain...	Ball...	Ball....	2700	34x4	34x4
M. Disc...	Sel....	3	Motor...	Shaft ...	124	56	Chr.-N...	Plain...	Ball...	Ball....	2775	34x4	34x4
M. Disc...	Sel....	3	Motor...	Shaft....	124	56	Chr.-N...	Plain...	Ball...	Ball....	3190	34x4	34x4
Cone.....	Sel....	3	Unit....	Shaft....	130	56	P. Steel..	3 Plain.	Roller.	Roller...	.....	36x5	36x5
Cone.....	Sel....	3	Unit....	Shaft....	130	56	P. Steel..	3 Plain.	Roller.	Roller...	.....	36x5	36x5
Cone.....	Sel....	3	Unit....	Shaft....	130	56	P. Steel..	3 Plain.	Roller.	Roller...	.....	36x5	36x5
Cone.....	Sel....	3	Unit....	Shaft....	130	56	P. Steel..	3 Plain.	Roller.	Roller...	.....	36x4½	36x4½
Cone.....	Sel....	3	Unit....	Shaft....	130	56	P. Steel..	3 Plain.	Roller.	Roller...	.....	36x4½	36x4½
Cone.....	Sel....	3	Unit....	Shaft....	120	56	P. Steel..	3 Plain.	Roller.	Roller...	.....	36x4½	36x4½
Cone.....	Sel....	3	Unit....	Shaft....	120	56	P. Steel..	3 Plain.	Roller.	Roller...	.....	36x4½	36x4½
Cone.....	Sel....	3	Unit....	Shaft....	120	56	P. Steel..	3 Plain.	Roller	Roller...	.....	36x4½	36x4½
Cone.....	Sel....	3	Unit....	Shaft....	120	56	P. Steel..	3 Plain.	Roller.	Roller...	.....	36x4½	36x4½
Cone.....	Sel....	3	Unit....	Shaft....	106	56	P. Steel..	3 Plain.	Roller.	Roller...	.....	36x4	36x4
Cone.....	Sel....	3	Unit....	Shaft....	120	56	P. Steel..	3 Plain.	Roller.	Roller...	.....	36x4	36x4
Cone.....	Sel....	3	Unit....	Shaft....	120	56	P. Steel..	3 Plain.	Roller.	Roller...	.....	36x4	36x4
Cone.....	Sel....	3	Unit....	Shaft....	120	56	P. Steel	3 Plain.	Roller.	Roller...	.....	36x4	36x4
Cone.....	Sel....	3	Unit....	Shaft....	120	56	P. Steel..	3 Plain.	Roller.	Roller...	.....	36x4	36x4
Cone.....	Sel....	3	Unit....	Shaft....	120	56	P Steel..	3 Plain.	Roller	Roller ..	.....	36x4	36x4
Cone.....	Sel....	3	Unit....	Shaft....	120	56	P. Steel.	3 Plain.	Roller.	Roller...	.....	36x4	36x4
Cone.....	Sel....	3	Unit....	Shaft....	120	56	P. Steel..	3 Plain.	Roller.	Roller..	.....	36x4	36x4
Cone.....	Sel....	3	Unit....	Shaft ...	114	56	P. Steel..	3 Plain.	Roller.	Roller...	.....	34x4	34x4
Cone.....	Sel....	3	Unit....	Shaft....	114	56	P. Steel..	3 Plain.	Roller.	Roller...	.....	34x4	34x4
Cone.....	Sel....	3	Unit....	Shaft....	114	56	P. Steel..	3 Plain.	Roller.	Roller...	.....	34x4	34x4
Cone.....	Sel....	3	Unit....	Shaft....	114	56	P. Steel..	3 Plain.	Roller.	Roller...	.....	34x4	34x4
Cone.....	Sel....	3	Unit....	Shaft....	114	56	P. Steel..	3 Plain.	Roller.	Roller...	.....	34x4	34x4
Cone.....	Sel....	3	Unit....	Shaft....	114	56	P. Steel..	3 Plain.	Roller	Roller...	.....	34x3½	34x3½
Cone.....	Sel....	3	Unit....	Shaft....	112	56	P. Steel..	3 Plain.	Roller.	Roller...	.....	32x3½	32x3½
Cone.....	Sel....	3	Unit....	Shaft....	112	56	P. Steel..	3 Plain.	Roller.	Roller...	.....	32x3½	32x3½
Cone.....	Sel....	3	Unit....	Shaft....	112	56	P. Steel..	3 Plain.	Roller.	Roller...	.....	32x3½	32x3½
Cone.....	Sel....	4	Unit....	Shaft....	118	56	P. Steel..	Plain...	Ball...	Ball....	3600	36x4	36x4½
Cone.....	Sel....	4	Unit....	Shaft....	118	56	P. Steel..	Plain...	Ball...	Ball....	3600	36x4	36x4½
Cone.....	Sel....	3	Unit....	Shaft....	116	56	P. Steel..	Plain...	Ball...	Ball....	3150	36x4	36x4
None.....	Frict'n	4	Unit....	Shaft....	125	56	P. Steel..	Plain...	Roller.	Roller...	3600	34x3	34x3½
None	Frict'n	4	Unit....	Shaft....	140	56	P. Steel..	Plain...	Roller.	Roller...	4600	34x3½	36x3
None.....	Frict'n	4	Unit....	Shaft....	140	56	P. Steel..	Plain...	Roller.	Roller...	4900	34x4	36x3½
3 Disc....	Sel....	4	Unit....	Chain...	140	56	P. Steel.	Plain...	B.&R.	Ball....	4500	38x4½	38x5½
3 Disc....	Sel....	4	Unit....	Chain...	140	56	P. Steel..	Plain...	B.&R.	Ball....	4340	38x4½	38x4½
3 Disc....	Sel....	4	Unit....	Chain...	140	56	P Steel..	Plain...	B.&R.	Ball....	4250	38x4½	38x4½
3 Disc....	Sel....	4	Unit....	Chain...	140	56	P. Steel..	Plain...	B &R.	Ball....	4800	38x4½	38x5½
3 Disc....	Sel....	4	Unit....	Chain...	140	56	P. Steel..	Plain...	B.&R.	Ball....	4800	38x4½	38x5½
3 Disc....	Sel....	3	Unit....	Shaft....	125	56	P. Steel..	Plain...	Ball...	Roller...	3775	36x4½	36x4½
3 Disc....	Sel....	3	Unit....	Shaft....	125	56	P. Steel..	Plain...	Ball ..	Roller. .	3800	36x4½	36x4½
3 Disc....	Sel....	3	Unit....	Shaft....	125	56	P. Steel..	Plain...	Ball...	Roller...	3800	36x4½	37x5
3 Disc....	Sel....	3	Unit....	Shaft....	125	56	P. Steel..	Plain...	Ball...	Roller ..	3800	36x4½	37x5
3 Disc....	Sel....	3	Unit....	Shaft....	125	56	P. Steel..	Plain...	Ball...	Roller...	3660	36x4½	36x4½
3 Disc....	Sel....	3	Unit....	Shaft....	125	56	P. Steel .	Plain...	Ball...	Roller...	3685	36x4½	36x1½
3 Disc....	Sel....	3	Unit....	Shaft....	125	56	P. Steel..	Plain...	Ball...	Roller...	3650	36x4½	36x4½
3 Disc....	Sel....	3	Unit....	Shaft....	125	56	P. Steel..	Plain...	Ball...	Roller...	4150	36x4½	37x5
3 Disc....	Sel....	3	Unit....	Shaft....	125	56	P. Steel..	Plain...	Ball...	Roller...	4175	36x4½	37x5
3 Disc....	Sel....	3	Unit....	Shaft....	123	56	P. Steel..	Plain...	Ball...	Roller ..	3650	34x4½	34x4½
Disc....	Sel....	3	Unit....	Shaft....	123	56	P Steel..	Plain...	Ball...	Roller ..	3680	34x4½	34x4½
Disc....	Sel....	3	Unit....	Shaft ...	123	56	P. Steel..	Plain...	Ball...	Roller...	3680	34x4½	34x4½

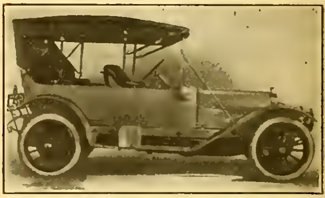
STUDEBAKER—Studebaker Automobile Co., Cleveland, O.
THOMAS—E. R. Thomas Motor Co., Buffalo, N. Y.

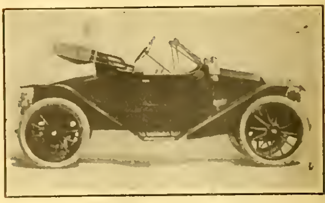
Don't tinker with the mechanisms of the car, nor fail to provide a sufficient quantity of good lubricating oil for each of the bearings.


Stevens-Duryea Model AA fore-door standard


Peerless limousine with central control

Stoddard-Dayton 50 11F limousine


Pierce-Arrow 48 H. P. protected touring car


Franklin Model G torpedo phaeton

Details of Passenger Automobiles

MAKE AND MODEL	Price	H.P.A.L.A.M.	BODY		MOTOR				COOLING		IGNITION		Lubrication
			Type	Seats	Cyl.	Bore Inches	Stroke Inches	Cyl. Cast	Radiator	Pump	Magneto	Battery	
White G-A	$2000	22.5	Tour'g..	5	4	3¾	5⅛	Block.	H'comb..	Cent 'fl	H. T...	None...	Pump..
White G-E	3000	22.5	Tour'g..	5	4	3¾	5⅛	Block.	H'comb..	Cent 'fl	H T...	None...	Pump..
White G-A	2000	22.5	Tour'g..	..	4	3¾	5⅛	Block.	H'comb..	Cent 'fl	H. T...	None...	Pump..
White G-B	2500	22.5	Tour'g..	5	4	3¾	5⅛	Block.	H'comb..	Cent 'fl	H. T...	None...	Pump..
White G-E	3200	22.5	Torp'o..	7	4	3¾	5⅛	Block.	H'comb..	Cent 'fl	H. T...	None...	Pump..
White G-B	3600	22.5	Limous.	5	4	3¾	5⅛	Block.	H'comb..	Cent 'fl	H. T...	None...	Pump..
White G-B	3800	22.5	Land't..	..	4	3¾	5⅛	Block.	H'comb..	Cent 'fl	H. T...	None...	Pump..
Winton "Six"	3000	48.6	Tg.T.R.	4	6	4½	5	Pairs..	Tubular.	Cent 'fl	H. T...	....	Pump.
Winton "Six"	3250	48.6	Torp'o..	5	6	4½	5	Pairs..	Tubular.	Cent 'fl	H. T...	....	Pump.
Winton "Six"	4250	48.6	Limous.	7	6	4½	5	Pairs..	Tubular.	Cent 'fl	H. T...	....	Pump..
Winton "Six"	4500	48.6	Land't..	7	6	4½	5	Pairs .	Tubular.	Cent 'fl	H. T...	....	Pump..
Winton "Six"	2750	48.6	Extra..	..	6	4½	5	Pairs..	Tubular.	Cent 'fl	H. T...	....	Pump..

WHITE—White Co., Cleveland, O.

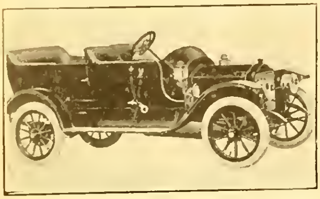
Review of the Palace Show

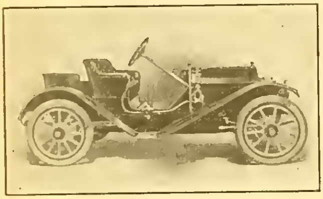
On Following Pages Will Be Found Details and Illustrations of the Cars Exhibited

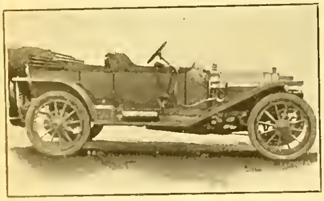
NEW YEARS' EVE witnessed the opening of the automobile show at the Grand Central Palace in New York City under favorable auspices, with the weather poor and the attendance large. Much interest was centered in the aeronautical exhibition, and the attendance was increased, due to the presence of a fine display of aeroplanes, some of which are famous for the work they have already done in a relatively new field, while others are representative of the progress that is being made, with just a tinge of speculation in their composition, which impinges a certain piquancy on the plane of thought. Besides the excellence of the aeronautical display there was a considerable gathering of accessory makers whose products whetted the interest of the spectators, but the real *piece de resistance* was presented in the form of the display of automobiles by 41 makers representing 170 models of cars.

In order to maintain a certain uniformity of presentation of all the automobiles of the year, the cars as they were shown at the Palace are here given in a tabulation which is designed on the same basis as that for the automobiles which will be on exhibition at the Garden when the A. L. A. M. show is opened there. An explanation of this tabulation is presented as a prelude to the A. L. A. M. table, and since they are both alike this explanation will serve throughout.

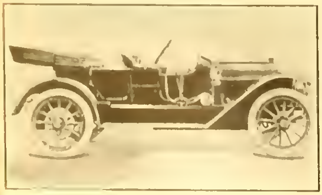
The freight automobiles which are on exhibition at the Palace are excluded from the tabulation, it being the intention to publish a complete file of all American-made freight automobiles in an early issue of The Automobile, so that merchants will have at their disposal a complete set of data covering the whole freight field. The aeronautical display at the Palace, while it is very interesting, can scarcely be looked upon as a desirable acquisition in connection with an automobile show, due to its disconcerting influence, and the fact that interested spectators, instead of confining themselves to the examination of the cars, are prone to wander off among a maze of aeroplanes and forget the object of their mission.


White 20-30 H. P. 5-passenger torpedo


Hudson "33" two-seater with rumble


Locomobile torpedo aluminum body

Chalmers "30" coupé


Columbia 4-passenger vestibule roadster

on the American Market for 1911

Clutch	TRANSMISSION				Wheelbase	Tread	Frame	BEARINGS			Weight	TIRES	
	Type	Speeds	Location	Drive				Crankshaft	Trans-mis'n	Axle		Front	Rear
Cone	Sel.	4	Unit	Shaft	110	56	P. Steel	2 Ball	Ball	Ball		32x4	32x4
Cone	Sel.	4	Unit	Shaft	120	56	P. Steel	2 Ball	Ball	Ball		36x4	36x4½
Cone	Sel.	4	Unit	Shaft	110	56	P. Steel	2 Ball	Ball	Ball		32x4	32x4
Cone	Sel.	4	Unit	Shaft	120	56	P. Steel	2 Ball	Ball	Ball		34x4	34x4
Cone	Sel.	4	Unit	Shaft	120	56	P. Steel	2 Ball	Ball	Ball		34x4	34x4
Cone	Sel.	4	Unit	Shaft	120	56	P. Steel	2 Ball	Ball	Ball		34x4	34x4
Cone	Sel.	4	Unit	Shaft	120	56	P. Steel	2 Ball	Ball	Ball		34x4	34x4
M. Disc	Sel.	4	Unit	Shaft	130	[1]56½	P. Steel	4 Plain	Ball	Roller		36x4	36x4½
M. Disc	Sel.	4	Unit	Shaft	130	[1]56½	P. Steel	4 Plain	Ball	Roller		36x4	36x4½
M. Disc	Sel.	4	Unit	Shaft	130	[1]56½	P. Steel	4 Plain	Ball	Roller		36x4	36x4½
M. Disc	Sel.	4	Unit	Shaft	130	[1]56½	P. Steel	4 Plain	Ball	Roller		36x4	36x4½
M. Disc	Sel.	4	Unit	Shaft	130	[1]56½	P. Steel	4 Plain	Ball	Roller		34x4	36x4½

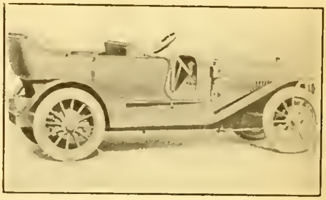
[1] Or 60 inches

WINTON—Winton Motor Carriage Co., Cleveland, O.

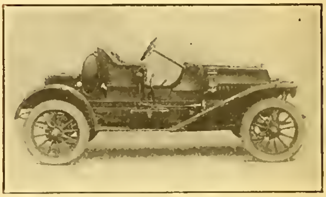
As a matter of fact the brave showing made by the automobiles at the Palace is in the face of a series of circumstances which are largely due to the absence of a maker's organization. The idea of destroying the value of the automobile display by interjecting a novelty could not be averted, due to the fact that the show is being conducted by promoters rather than by an organization of automobile makers. It may be good management, from the point of view of the promoters, but as an automobile project the aeroplanes, in combination with bad weather, are having a marked influence which is not altogether to the good of the automobile industry.

The experience that is being gathered by the makers of automobiles who are exhibiting at the Palace should be worth something to them, and the prospects are in favor of a better organization for the conduct of the show a year hence; moreover, the elimination of the promoter idea is in keeping with show traditions in this country, and those who have any ground for contesting the point against the promoter idea will do well to investigate the English show situation, it being the case that the Olympia is controlled by promoters, and the makers of automobiles of Great Britain pay the score. At all events, they provide the funds necessary to support the promoters, and in the long run the patrons of the automobile industry loosen their purse strings to make up for the deficit.

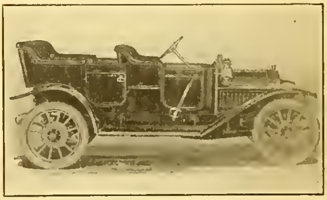
Those who have in mind the purchase of a good automobile should remember that the time is not ripe to invest in flying machines for utility purposes, and they should also take into account the fact that they now have an opportunity to leisurely examine the products of the makers who have brought their automobiles to the Palace Show, and that it will be twelve months ere this opportunity will be afforded again. The great question is to go to the show with the specific idea of making a critical examination on a comparative basis, considering the extent of funds available for the purchase of an automobile, and to avoid having the mind distracted by outside and immaterial considerations. The general showing that is being made by the automobiles exhibited is receiving favorable mention by all who are competent to judge, and this is in the face of the fact that preparation began too late to afford the best result. The presence of freight automobiles has added a considerable measure of interest, although the character of the audience takes on a distinct tone in favor of those who use passenger automobiles.



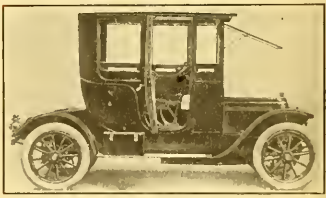
Winton 6-cylinder touring car



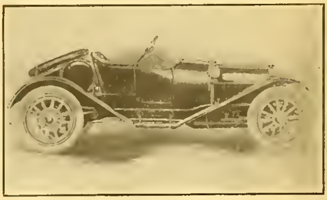
Jackson Model 25 roadster



White 20-30 H. P. 6-passenger coupé

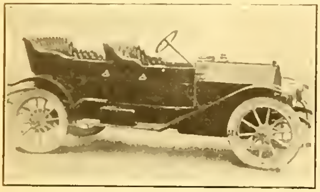


White 20-30 H. P. 4-passenger coupé

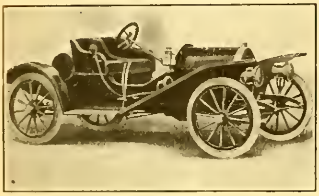


Overland 2-seated torpedo

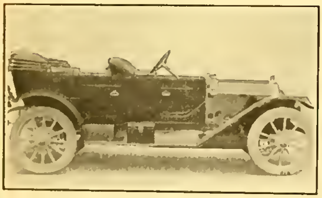
Details of Passenger Automobiles



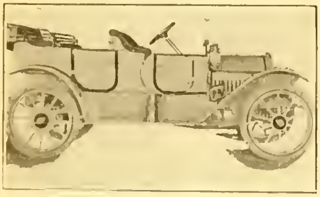
Henry fore-door type of touring car



K-R-I-T roadster type of car



Lexington fore-door touring car



Lion fore-door touring car

Metz type of runabout with top

MAKE AND MODEL	Price	H.P.A.L.A.M.	BODY		MOTOR				COOLING		IGNITION		Lubrication
			Type	Seats	Cyl.	Bore Inches	Stroke Inches	Cyl. Cast	Radiator	Pump	Magneto	Battery	
Gaylord	1250	25.6	Utility.	4	4	4	5	......	Block...	Pump.	H. T...	Dry....	Pump..
Gaylord	1150	25.6	D. ton..	5	4	4	4½	......	Block...	Pump	H. T...	Dry....	Pump..
Gaylord	1000	22.5	R'ster..	2	4	3¾	4½	......	Block...	Pump.	H. T...	Dry....	Pump..
Gaylord	1250	25.6	Fd. Rr.	2	4	4	5	......	Block...	Pump.	H. T...	Dry....	Pump..
Henry M	1750	27.2	Tour'g..	5	4	4⅛	5¼	Pairs..	Tubular.	Cent 'fl	H. T...	Dry....	Splash..
Henry F	1800	27.2	F.d.Tg..	5	4	4⅛	5¼	Pairs..	Tubular.	Cent 'fl	H T...	Dry....	Splash..
Henry P	1750	27.2	To. Rr..	2	4	4⅛	5¼	Pairs..	Tubular.	Cent 'fl	H. T...	Dry....	Splash..
Henry K	900	22.5	R'ster..	2	4	3¾	4½	Block.	Tubular.	Syph'n	H. T...	None...	Pump..
Imperial 37	1700	30.6	sd. Tg.	5	4	4⅜	4½	Pairs..	Tubular.	Syph'n	H. T...	Dry....	Pump..
Imperial 38	1700	30.6	Fd. Rr.	4	4	4⅜	4½	Pairs..	Tubular.	Syph'n	H T...	Dry....	Pump..
Imperial 38	1650	30.6	Tour'g..	4	4	4⅜	4½	Pairs.	Tubular.	Syph'n	H. T...	Dry....	Pump..
Imperial 36	1650	30.6	R'ster..	4	4	4⅜	4½	Pairs.	Tubular.	Syph'n	H. T...	Dry....	Pump..
Imperial 30	1350	28.9	....	5	4	4¼	4½	Pairs.	Tubular.	Syph'n	H. T...	Dry....	Splash..
Imperial 44	1600	30.6	Fd Tor	5	4	4⅜	4½	Pairs.	Tubular.	Syph'n	H. T...	Dry....	Splash..
Imperial 43	1500	30.6	R'ster..	2	4	4⅜	4½	Pairs.	Tubular.	Syph'n	H. T...	Dry....	Splash.
Imperial 42	1500	30.6	Tour'g..	4	4	4⅜	4½	Pairs.	Tubular.	Syph'n	H. T...	Dry....	Splash.
Imperial 51	2000	30.6	Fd. Rr.	4	4	4¾	5¼	Pairs.	Tubular.	Syph'n	H. T...	Dry....	Pump..
Imperial 50	2000	....	Fd. Tg.	5	4	4¾	5¼	Pairs..	Tubular.	Syph'n	H. T...	Dry....	Splash..
Johnson Silent	1600	28.9	Straight	5	4	4½	4½	Pairs..	H'comb..	Cent 'fl	H. T...	....	Splash
Johnson Silent	2500	32.4	Straight	5	4	4½	5¼	Pairs.	H'comb..	Cent 'fl	H. T...	....	Splash.
Johnson Silent	3000	40.0	Tour'g..	7	4	5	5½	Pairs..	H'comb..	Cent 'fl	H. T...	....	Splash
Krit	800	22.5	R'bout.	2	4	3¾	4	Block.	Tubular.	Syph'n	H. T...	....	Splash
Krit	825	22.5	R'ster..	3	4	3¾	4	Block.	Tubular.	Syph'n	H. T...	....	Splash
Krit	850	22.5	Tour'g..	3	4	3¾	4	Block.	Tubular.	Syph'n	H. T...	....	Splash
Krit	1275	22.5	Coupe..	3	4	3¾	4	Block.	Tubular.	Syph'n	H. T...	....	Splash
Lexington A	2500	36.1	Tour'g..	7	4	4¾	5	Single	Tubular.	Gear..	H. T...	Storage	Pump..
Lexington A	2500	36.1	F.d.Tg.	7	4	4¾	5	Single.	Tubular.	Gear..	H. T...	Storage	Pump..
Lexington A	2500	36.1	Limous.	7	4	4¾	5	Single.	Tubular	Gear..	H. T...	Storage	Pump..
Lexington D	1650	32.4	Tour'g.	5	4	4½	5	Single.	Tubular.	Gear..	H. T...	Dry....	Pump..
Lexington D	1650	32.4	F.d.Tg.	5	4	4½	5	Single.	Tubular.	Gear..	H. T...	Dry....	Pump..
Lexington E	1650	32.4	To. Rr..	2	4	4½	5	Single.	Tubular.	Gear..	H. T...	Dry....	Pump..
Lexington E	1650	32.4	Torp'o..	4	4	4¼	5	Single.	Tubular.	Gear..	H. T...	Dry....	Pump..
Lexington F	1850	32.4	Tour'g..	5	4	4½	5	Single.	Tubular.	Gear..	H. T...	Dry....	Pump..
Lion "40" A	1500	32.4	....	5	4	4½	5	Pairs..	Tubular.	Cent 'fl	H. T...	Dry....	Pump..
Lion "40" B	1475	32.4	....	4	4	4½	5	Pairs..	Tubular.	Cent 'fl	H. T...	Dry....	Pump..
Lion "40" C	1450	32.4	....	2	4	4½	5	Pairs..	Tubular.	Cent 'fl	H. T...	Dry....	Pump..
Lion "40" D	1600	32.4	F. door.	5	4	4½	5	Pairs..	Tubular.	Cent 'fl	H. T...	Dry....	Pump..
McFarlan Six **32**	2500	38.4	Tour'g..	7	6	4	5	Pairs..	Tubular.	Cent 'fl	H. T...	Dry....	Splash.
McFarlan Six **34**	2500	38.4	Torp'o..	4	6	4	5	Pairs..	Tubular.	Cent 'fl	H. T...	Dry....	Splash.
McFarlan Six **36**	2500	38.4	R'bout.	2	6	4	5	Pairs..	Tubular.	Cent 'fl	H. T...	Dry....	Splash.
McFarlan Six **26**	2100	31.6	Tour'g..	5	6	3⅝	4	Pairs..	Tubular.	Cent 'fl	H. T...	Dry....	F. feed
McFarlan Six **28**	2100	31.6	Tour'g..	4	6	3⅝	4	Pairs.	Tubular.	Cent 'fl	H. T...	Dry....	F. feed.
McFarlan Six **30**	2100	31.6	R'bout.	2	6	3⅝	4	Pairs..	Tubular.	Cent 'fl	H. T...	Dry....	F. feed.
Metz	485	8.7	R'bout.	2	2	$3\frac{3}{10}$	3½	Single.	Air coold	......	H. T...	....	Splash.
Norwalk	1600	25.6	Tour'g.	5	4	4	5	Single	Tubular.	Cent 'fl	H. T...	....	Splash
Norwalk	1700	25.6	Vestib..	4	4	4	5	Single	Tubular.	Cent 'fl	H. T...	....	Splash.
Norwalk	1700	25.6	R'ster..	2	4	4	5	Single	Tubular	Cent 'fl	H. T...	....	Splash.
The Only Car A	800	10.5	Racy...	2	1	5⅜	10	Single.	Tubular.	......	H. T...	Dry....	F. feed
The Only Car F	1050	10.5	Tour'g..	4	1	5⅜	10	Single.	Tubular.	......	H. T...	Dry....	F. feed.
Otto A	1950	28.9	R'ster..	3	4	4¼	4½	Pairs..	H'comb.	Cent 'fl	H. T...	Battery	Pump..
Otto B	2000	28.9	D. ton..	4	4	4¼	4½	Pairs..	H'comb.	Cent 'fl	H. T...	Battery	Pump..
Otto C	2000	28.9	Tour'g..	5	4	4¼	4½	Pairs.	H'comb..	Cent 'fl	H. T...	Battery	Pump..
Paige Detroit	800	22.5	R'ster..	2	4	3¾	4	Block.	Tubular.	None..	H. T...	None...	Pump.
Paige Detroit	900	22.5	Surrey..	4	4	3¾	4	Block.	Tubular.	None..	H. T...	None...	Pump.
Parry **25**	900	19.6	R'bout.	2	4	3½	3¾	Pairs..	Tubular.	Syph'n	H. T...	None...	Splash
Parry **43**	1300	28.9	R'ster..	4	4	4¼	4½	Pairs..	Tubular.	Cent 'fl	H. T...	Dry....	Splash
Parry **42**	1350	28.9	Tour'g..	5	4	4¼	4½	Pairs..	Tubular.	Cent 'fl	H. T...	Dry....	Splash.
Parry **39**	1500	28.9	R'ster...	4	4	4¼	4½	Pairs..	Tubular.	Cent 'fl	H. T...	None...	Splash
Parry **37**	1500	28.9	D. ton..	4	4	4¼	4½	Pairs..	Tubular.	Cent 'fl	H. T...	None...	Splash
Parry **44**	1600	28.9	Tour'g..	5	4	4¼	4½	Pairs..	Tubular.	Cent 'fl	H. T...	None...	Splash
Parry **46**	1850	32.4	Torp'o..	5	4	4½	4½	Pairs..	Tubular.	Cent 'fl	H. T...	None...	Splash
Paterson A	1295	25.6	Tour'g..	5	4	4	4	Pairs..	Tubular.	None .	L. T....	Dry....	Splash
Paterson B	1295	25.6	D. ton..	4	4	4	4	Pairs..	Tubular.	None..	L. T....	Dry....	Splash.
Paterson C	1175	25.6	T'bout..	4	4	4	4	Pairs..	Tubular.	None .	L. T....	Dry....	Splash.
Paterson E	1425	25.6	F. door.	4	4	4	4	Pairs..	Tubular.	None..	L. T....	Dry....	Splash
Paterson F	1200	25.6	R'ster ..	2	4	4	4	Pairs.	Tubular.	None..	L. T....	Dry....	Splash.
Paterson G	1550	28.9	Tour'g..	5	4	4¼	4½	Pairs..	Tubular.	Cent 'fl	L. T....	Dry....	Splash..
Paterson H	1600	28.9	F.d Tg .	5	4	4¼	4½	Pairs .	Tubular.	Cent 'fl	L. T....	Dry....	Splash

GAYLORD—Gaylord Motor Car Co., Gaylord, Mich.
HENRY—Henry Motor Sales Co., Muskegon, Mich.
IMPERIAL—Imperial Automobile Co., Jackson, Mich.
K-R-I-T—K-R-I-T Motor Car Co., Detroit, Mich.
LEXINGTON—Lexington Motor Car Co., Connersville, Ind.
LION—Lion Motor Sales Co., Detroit, Mich.
McFARLAN—McFarlan Motor Car Company, Connersville, Ind.

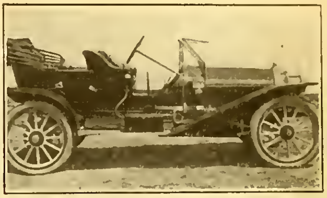
on the American Market for 1911

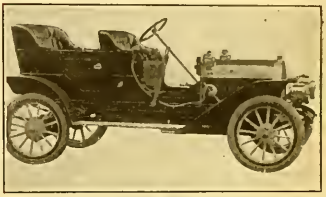
Clutch	TRANSMISSION				Wheelbase	Tread	Frame	BEARINGS			Weight	TIRES	
	Type	Speeds	Loca-tion	Drive				Crank-shaft	Trans-mis'n	Axle		Front	Rear
M. Disc...	Sel ...	3	Axle....	Shaft....	112	56	P. Steel .	....	......	Roller..	.....	32x3½	32x3½
M. Disc...	Sel....	3	Axle....	Shaft....	106	56	P. Steel..	....	......	Roller..	.....	32x3½	32x3½
M. Disc...	Sel....	3	Axle....	Shaft....	106	56	P. Steel .	....	......	Roller...	.....	32x3½	32x3½
M. Disc...	Sel....	3	Axle....	Shaft....	112	56	P. Steel .	....	......	Roller...	.....	36x3½	36x3½
M. Disc...	Sel....	3	Unit....	Shaft....	116	56	P. Steel..	Plain...	Ball...	Ball....	2550	34x4	34x4
M. Disc...	Sel....	3	Unit....	Shaft....	116	56	P. Steel..	Plain...	Ball...	Ball. ..	2550	34x4	34x4
M Disc...	Sel....	3	Unit....	Shaft....	116	56	P. Steel..	Plain...	Ball...	Ball.....	2550	34x4	34x4
M. Disc...	Sel....	3	Axle....	Shaft....	106	56	P. Steel..	Plain...	Ball...	Roller...	1800	32x3½	32x3½
Cone.....	Sel....	3	Motor...	Shaft ...	112	56	P. Steel.	....	Roller.	Roller...	.....	34x3½	34x3½
Cone.....	Sel....	3	Motor...	Shaft....	112	56	P. Steel .	....	Roller	Roller...	.....	34x3½	34x3½
Cone.....	Sel....	3	Motor...	Shaft....	112	56	P. Steel..	....	Roller.	Roller..	.....	34x3½	34x3½
Cone.....	Sel....	3	Motor...	Shaft....	112	56	P. Steel..	....	Roller.	Roller..	.....	34x3½	34x3½
Cone.....	Sel ...	3	Motor...	Shaft....	106	56	P. Steel..	....	Roller.	Roller...	.....	32x3½	32x3½
Disc......	Sel....	3	Motor...	Shaft....	115	56	P. Steel..	....	Roller.	Roller...	.....	34x3½	34x3½
Disc......	Sel....	3	Motor...	Shaft....	115	56	P. Steel..	....	Roller.	Roller...	.....	34x3½	34x3½
Disc......	Sel....	3	Motor...	Shaft....	115	56	P. Steel..	....	Roller.	Roller ..	.....	34x3½	34x3½
Cone.....	Sel....	3	Motor...	Shaft....	118	56	P. Steel .	....	Roller.	Roller...	.....	34x4	34x4
Cone.....	Sel....	3	Motor...	Shaft....	118	56	P. Steel..	....	Roller.	Roller...	.....	34x4	34x4
Cone.....	Sel....	3	Unit....	Shaft....	112	56	P. Steel..	Plain...	Plain..	Ball....	.....	34x3½	34x3½
Cone.....	Sel....	3	Unit....	Shaft....	112	56	P. Steel..	Plain...	Plain..	Ball....	.....	34x4	34x4
Cone ...	Sel....	3	Unit....	Shaft....	124	56	P. Steel..	Plain...	Plain..	Ball....	.....	36x4½	36x4½
M. Disc...	Sel....	2	Motor...	Shaft....	96	56	P. Steel..	Ball....	Ball...	Ball....	1200	32x3	32x3
M Disc...	Sel....	2	Motor...	Shaft....	96	56	P. Steel..	Ball....	Ball...	Ball....	1250	32x3	32x3
M. Disc...	Sel....	2	Motor...	Shaft....	96	56	P. Steel..	Ball....	Ball...	Ball....	1250	32x3	32x3
M. Disc...	Sel....	2	Motor...	Shaft....	96	56	P. Steel..	Ball....	Ball...	Ball....	1250	32x3	32x3
Cone.....	Sel....	3	S. Frame	Shaft....	122	56	P. Steel..	Plain...	Ball...	Roller...	3150	36x4½	36x4½
Cone.....	Sel....	3	S. Frame	Shaft....	122	56	P. Steel..	Plain...	Ball...	Roller...	3150	36x4½	36x4½
Cone.....	Sel....	3	S. Frame	Shaft....	122	56	P. Steel..	Plain...	Ball...	Roller...	3150	36x4½	36x4½
Cone.....	Sel....	3	S Frame	Shaft....	117	56	P. Steel..	Plain...	Ball...	Ball....	2750	34x3½	34x3½
Cone.....	Sel....	3	S. Frame	Shaft....	117	56	P. Steel..	Plain...	Ball...	Ball....	2800	34x3½	34x3½
Cone.....	Sel....	3	S. Frame	Shaft....	117	56	P. Steel..	Plain...	Ball...	Ball....	2500	34x3½	34x3
Cone.....	Sel....	3	S. Frame	Shaft....	117	56	P. Steel..	Plain...	Ball...	Ball....	2650	34x3½	34x3
Cone.....	Sel....	3	S. Frame	Shaft....	122	56	P. Steel..	Plain...	Ball...	Ball....	2850	34x4	34x4
Cone.....	Sel....	3	Unit....	Shaft....	112	56	P. Steel..	Plain...	Roller.	Roller...	2460	36x3½	36x3½
Cone.....	Sel....	3	Unit....	Shaft....	112	56	P. Steel..	Plain...	Roller.	Roller...	2350	36x3½	36x3½
Cone.....	Sel....	3	Unit....	Shaft....	112	56	P. Steel..	Plain...	Roller.	Roller...	2250	36x3½	36x3½
Cone.....	Sel....	3	Unit....	Shaft....	112	56	P. Steel..	Plain...	Roller	Roller...	2600	36x3½	36x3½
M. disc...	Sel....	3	Unit....	Shaft....	128	56	P. Steel..	Plain...	Ball...	Ball....	3000	36x4	36x4
M. disc...	Sel....	3	Unit....	Shaft....	128	56	P. Steel..	Plain...	Ball...	Ball....	3000	36x4	36x4
M. disc...	Sel....	3	Unit....	Shaft. ..	128	56	P. Steel..	Plain...	Ball...	Ball ...	3000	36x4	36x4
M. disc...	Sel....	3	Unit....	Shaft....	120	56	P. Steel..	Plain...	Plain..	B. & R.	2650	36x4	36x4
M. disc...	Sel....	3	Unit....	Shaft ...	120	56	P. Steel..	Plain...	Plain..	B. & R.	2650	36x4	36x4
M. disc...	Sel....	3	Unit....	Shaft....	120	56	P. Steel..	Plain...	Plain..	B. & R.	2650	36x4	36x4
....	Frit'n. ...		Unit....	2 Chain..	81	[2]48	Channel.	Plain...	Ball...	Ball....	750	28x3	28x3
Cone.....	Sel....	3	Unit....	Shaft....	117	56	P. Steel..	Plain...	Roller	Ball....	.....	36x3½	36x3½
Cone.....	Sel....	3	Unit....	Shaft....	117	56	P Steel..	Plain...	Roller.	Ball....	.....	36x3½	36x3½
Cone.....	Sel ...	3	Unit....	Shaft....	117	56	P Steel..	Plain...	Roller.	Ball....	.....	36x3½	36x3½
Cone.....	Sel ...	3	Axle....	Shaft ...	104	56	P. Steel..	Ball....	Ball...	Ball....	1700	29x3½	29x3½
Cone.....	Sel. ...	3	Axle....	Shaft ...	104	56	P. Steel..	Ball....	Ball...	Ball....	1900	32x3½	32x3½
Cone.....	Sel....	3	Axle....	Shaft....	123	56	P. Steel..	Plain...	Ball...	Ball....	2200	34x3½	34x3½
Cone.....	Sel....	3	Axle....	Shaft....	123	56	P. Steel..	Plain...	Ball...	Ball....	2300	34x3½	34x3½
Cone.....	Sel....	3	Axle....	Shaft....	123	56	P. Steel..	Plain...	Ball...	Ball....	2400	34x4	34x4
M. disc...	Sel....	2	Unit....	Shaft....	90	56	P. Steel..	Plain ..	Plain..	Roller..	.....	32x3	32x3
M. disc...	Sel....	3	Unit....	Shaft....	104	56	P. Steel.	Plain...	Ball...	Roller...	.....	32x3½	32x3½
Cone.....	Sel....	2	Unit....	Shaft....	100	56	P. Steel .	Plain...	Roller.	Roller...	1700	32x3	32x3
Cone.....	Sel....	3	S. Frame	Shaft....	116	[1]56	P. Steel .	Plain...	Roller.	Roller...	2300	32x3½	32x3½
Cone.....	Sel....	3	S. Frame	Shaft....	116	56	P. Steel..	Plain...	Roller.	Roller...	2300	32x3½	32x3½
Cone.....	Sel....	3	S. Frame	Shaft ...	116	[1]56	P. Steel .	Plain...	Roller.	Roller...	2300	32x3½	32x3½
Cone.....	Sel....	3	S. Frame	Shaft....	116	[1]56	P. Steel..	Plain...	Roller.	Roller...	2300	34x3½	34x3½
Cone.....	Sel....	3	S. Frame	Shaft....	118	[1]56	P. Steel..	Plain...	Roller.	Roller...	2300	36x3½	36x3½
Cone.....	Sel....	3	S. Frame	Shaft....	118	[1]56	P. Steel..	Plain...	Roller.	Roller...	2300	36x3½	36x3½
Cone.....	Sel....	3	Unit....	Shaft....	106	56	P. Steel..	Plain...	Ball...	Ball....	2000	32x3½	32x3½
Cone.....	Sel....	3	Unit....	Shaft....	106	56	P. Steel..	Plain...	Ball...	Ball....	2000	32x3½	32x3½
Cone.....	Sel....	3	Unit....	Shaft....	106	56	P. Steel..	Plain...	Ball...	Ball....	2000	32x3½	32x3½
[illegible]e.....	Sel....	3	Unit....	Shaft....	110	56	P. Steel.	Plain...	Ball...	Ball....	2000	34x3½	34x3½
[illegible]e.....	Sel....	3	Unit....	Shaft....	106	56	P. Steel..	Plain...	Ball...	Ball....	2000	32x3½	32x3½
[illegible]ne.....	Sel....	3	Unit....	Shaft....	118	56	P. Steel..	Plain...	Ball...	Ball....	2800	34x4	34x4
Cone.....	Sel....	3	Unit....	Shaft....	118	56	P. Steel..	Plain...	Ball...	Ball....	2800	34x4	34x4

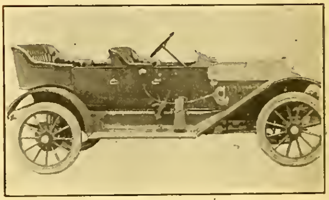
---

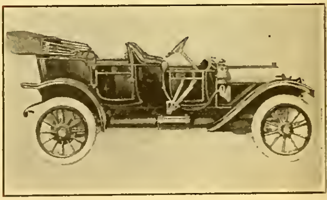
[1] Or 60 inches. [2] Or 56 inches.

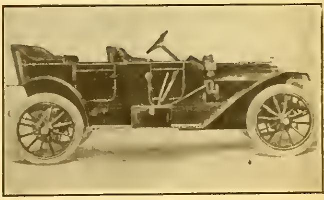
METZ—Metz Co., Waltham, Mass.
NORWALK "35"—Norwalk Motor Car Co., Norwalk, O.
THE ONLY CAR—Only Car Co., New York City.
OTTO—Otto Gas Engine Works, Philadelphia, Penna.
PAIGE-DETROIT—Paige-Detroit Motor Car Co., Detroit, Mich.
PARRY—Parry Automobile Co., Indianapolis, Ind.
PATERSON—W. A. Paterson Co., Flint, Mich.


Parry touring car without fore-door

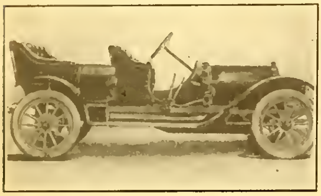

Paterson regular touring car


Imperial fore-door touring car

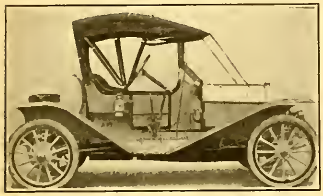

Babcock fore-door type of touring car


Auburn fore-door type of touring car

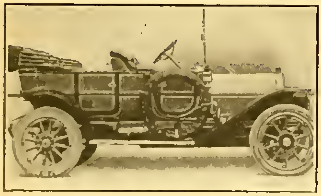
Details of Passenger Automobiles



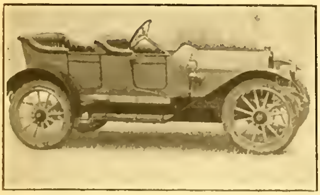
Schacht standard type of touring car



Staver-Chicago fore-door roadster type



Velie fore-door type of touring car



Warren-Detroit fore-door type of touring car

Washington fore-door type of touring car

MAKE AND MODEL	Price	H.P.A.L.A.M.	BODY		MOTOR				COOLING		IGNITION		Lubrication
			Type	Seats	Cyl.	Bore Inches	Stroke Inches	Cyl. Cast	Radiator	Pump	Magneto	Battery	
Penn "Thirty" R	$975	25.6	R'ster.	2	4	4	4½	Block.	Tubular.	Syph'n	H. T.	Dry.	Pump.
Penn "Thirty" T	1075	25.6	Lt. Tg.	4	4	4	4½	Block.	Tubular.	Syph'n	H. T.	Dry.	Pump.
Penn "Thirty" D	1075	25.6	Lt. del.	4	4	4	4½	Block.	Tubular.	Syph'n	H. T.	Dry.	Pump.
Petrel 25	850	22.5	Torp'o.	2	4	3¾	4½	Pairs.	Tubular.	Syph'n	H. T.	Dry.	Pump.
Petrel 35	1000	22.5	Torp'o.	4	4	3¾	4½	Pairs.	Tubular.	Syph'n	H. T.	Dry.	Pump.
Petrel 40	1350	30.6	R'ster.	2	4	4¾	4¾	Pairs.	Tubular.	Gear.	H. T.	Dry.	Pump.
Petrel 45	1500	30.6	T. ton.	4	4	4¾	4¾	Pairs.	Tubular.	Gear.	H. T.	Dry.	Pump.
Petrel 55	1500	30.6	Tour'g.	5	4	4¾	4¾	Pairs.	Tubular.	Gear.	H. T.	Dry.	Pump.
Petrel 65	1600	30.6	T. ton.	4	4	4⅜	5¼	Pairs.	Tubular.	Cent'fl	H. T.	Dry.	Pump.
Petrel 75	1600	30.6	Torp'o.	5	4	4⅜	5¼	Pairs.	Tubular.	Cent'fl	H. T.	Dry.	Pump.
Roader "20"	650	21.0	Roader.	2	4	3⅝	3⅝	Block.	Tubular[1]	Syph'n	H. T.	None.	Splash.
Roader "30"	750	25.6	Roader.	2	4	4	4¼	Block.	Tubular[1]	Syph'n	H. T.	None.	Splash.
Schacht	1400	28.9	Tour'g.	7	4	4¼	5	Block.	H'comb.	Cent'fl	H. T.	Dry.	Pump.
Schacht AA	1385	28.9	Tour'g.	7	4	4¼	5	Block.	H'comb.	Cent'fl	H. T.	Dry.	Splash.
Schacht M	1335	28.9	R'bout.	3	4	4¼	5	Block.	H'comb.	Cent'fl	H. T.	Dry.	Splash.
Staver-Chicago 30-T	1450	25.6	Tour'g.	5	4	4	4	Pairs.	Cellular.	Cent'fl	L. T.	Dry.	Pump.
Staver-Chicago 35-R	1650	30.6	Tor. Rr.	2	4	4⅜	5	Block.	Cellular.	Cent'fl	L. T.	Dry.	Splash.
Staver-Chicago 35-RR	1650	30.6	R. Rr.	2	4	4⅜	5	Block.	Cellular.	Cent'fl	L. T.	Dry.	Splash.
Staver-Chicago 35-T	1650	30.6	Tour'g.	5	4	4⅜	5	Block.	Cellular.	Cent'fl	L. T.	Dry.	Splash.
Staver-Chicago 40-B	1850	32.4	F.d.Tg.	5	4	4½	5	Block.	Cellular.	Cent'fl	L. T.	Dry.	Splash.
Staver-Chicago 40-C	2500	32.4	Coupe.	4	4	4½	5	Block.	Cellular.	Cent'fl	L. T.	Dry.	Splash.
Staver-Chicago 40-T	1850	32.4	O. Tour	7	4	4½	5	Block.	Cellular.	Cent'fl	L. T.	Dry.	Splash
Staver-Chicago 40-F	2000	32.4	F.d.Tg.	7	4	4½	5	Block.	Cellular.	Cent'fl	L. T.	Dry.	Splash.
Staver-Chicago 40-L	3250	32.4	Limous.	7	4	4½	5	Block.	Cellular.	Cent'fl	L. T.	Dry.	Splash.
Velie 40-G	1800	32.4	Tour'g.	5	4	4½	5¼	Pairs.	H'comb.	Cent'fl	H. T.	Dry.	Pump.
Velie 40-G1	2000	32.4	F.d.Tg.	5	4	4½	5¼	Pairs.	H'comb.	Cent'fl	H T.	Dry.	Pump.
Velie 40 H1	2000	32.4	R'ster.	2	4	4½	5¼	Pairs.	H'comb.	Cent'fl	H. T.	Dry.	Pump.
Velie 40 1	1800	32.4	T.ton.	4	4	4½	5¼	Pairs.	H'comb.	Cent'fl	H. T.	Dry.	Pump.
Velie 40 GLL	3000	32.4	Limous.	7	4	4½	5¼	Pairs.	H'comb.	Cent'fl	H.T.	Dry.	Pump.
Washington	2250	27.2	R'ster.	2	4	4⅛	5¼	Pairs.	Tubular.	Cent'fl	H. T.	Dry.	Pump.
Washington	2250	27.2	T. ton.	4	4	4⅛	5¼	Pairs.	Tubular.	Cent'fl	H. T.	Dry.	Pump.
Washington	2250	27.2	T. ton.	6	4	4⅛	5¼	Pairs.	Tubular.	Cent'fl	H. T.	Dry.	Pump.
Washington	2250	27.2	Tour'g.	5	4	4⅛	5¼	Pairs.	Tubular.	Cent'fl	H. T.	Dry.	Pump.
Washington	2250	27.2	Tour'g.	7	4	4⅛	5¼	Pairs.	Tubular.	Cent'fl	H. T.	Dry.	Pump.
Warren-Detroit "30"													
11-A	1200	25.6	R'ster.	3	4	4	4½	Block.	Tubular.	Cent'fl	H. T.	Dry.	Splash.
11-B	1300	25.6	D.ton.	4	4	4	4½	Block.	Tubular.	Cent'fl	H. T.	Dry.	Splash.
11-C	1325	25.6	Tour'g.	5	4	4	4½	Block.	Tubular.	Cent'fl	H. T.	Dry.	Splash.
11-D	1200	25.6	R'ster.	2	4	4	4½	Block.	Tubular.	Cent'fl	H. T.	Dry.	Splash.
11-E	1750	25.6	Coupe.	2	4	4	4½	Block.	Tubular.	Cent'fl	H T.	Dry.	Splash.
11-F	1500	25.6	Torp'o.	4	4	4	4½	Block.	wubular.	Cent'fl	H. T.	Storage	Splash.
11-G	1500	25.6	F.d.Tg.	5	4	4	4½	Block.	Tubular.	Cent'fl	H T.	Storage	Splash.
11-H	1300	25.6	Deliv'ry	2	4	4	4½	Block.	Tubular.	Cent'fl	H. T.	Dry.	Splash.
11-I	1300	25.6	Deliv'ry	2	4	4	4½	Block.	Tubular.	Cent'fl	H. T.	Dry.	Splash.

[1] With cellular features

PENN "30"—Penn Motor Car Co., East Liberty, Penna.
PETREL—Petrel Motor Car Co., Milwaukee, Wis.
ROADER—Roader Car Co., Brockton, Mass.
SCHACHT—Schacht Motor Car Co., Cincinnati, O.

In the Struggle for Perfection—The ideal thermal efficiency of an internal-combustion motor is not far from 38 per cent.; in other words, when 38 per cent. of all the heat units contained in the gasoline are converted into mechanical work the fortunate builder will have accomplished his task, leaving nothing more for designers to do as long as they hold to the Otto-cycle motor. In the meantime laboratory results under the most favorable conditions are on a basis of about 28 per cent. of the thermal efficiency, but in actual practice under the most favorable conditions this thermal efficiency falls off to perhaps 18 per cent. Under poor conditions of operation, especially as automobiles are driven in congested districts, the thermal efficiency is frequently as low as 12 per cent., but if the thermic relations of the functional members of the motor are awry, the thermal efficiency may then sink to perhaps 8 per cent. The immediate need under the circumstances is in the direction of the improvement of the relations such as will bring about a better average performance

on the American Market for 1911

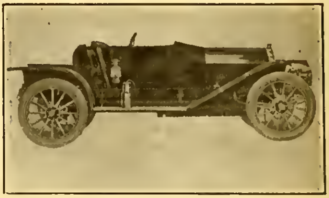
Clutch	TRANSMISSION				Wheelbase	Tread	Frame	BEARINGS			Weight	TIRES	
	Type	Speeds	Location	Drive				Crankshaft	Trans-mis'n	Axle		Front	Rear
Cone	Sel	3	Unit	Shaft	105	56	P. Steel	Plain	Roller	Roller	1775	32x3½	32x3½
Cone	Sel	3	Unit	Shaft	105	56	P. Steel	Plain	Roller	Roller	1850	32x3½	32x3½
Cone	Sel	3	Unit	Shaft	105	56	P. Steel	Plani	Roller	Roller	1900	32x3½	32x3½
None	Frict'n	...	Unit	2 Chains	96	56	P. Steel	Plain	Plain	Ball	1550	32x3	32x3
None	Frict'n	...	Unit	2 Chains	96	56	P. Steel	Plain	Plain	Ball	1625	32x3	33x3½
None	Frict'n	...	Unit	2 Chains	108	56	P. Steel	Plain	Plain	Ball	2000	34x3½	34x3½
None	Frict'n	...	Unit	2 Chains	115	56	P. Steel	Plain	Plain	Ball	2300	34x3½	34x3½
None	Frict'n	...	Unit	2 Chains	115	56	P. Steel	Plain	Plain	Ball	2400	34x3½	34x3½
None	Frict'n	...	Unit	2 Chains	118	56	P. Steel	Plain	Plain	Ball	2500	34x3½	34x3½
None	Frict'n	...	Unit	2 Chains	118	56	P. Steel	Plain	Plain	Ball	2500	34x3½	34x3½
Cone	Sel	2	Axle	Shaft	104	56	P. Steel	Plain	Plain	Ball	1350	34x3	34x3
Cone	Sel	2	Axle	Shaft	104	56	P. Steel	Plain	Plain	Ball	1500	34x3	34x3
Cone	Sel	3	Unit	Shaft	120	56	P. Steel	Plain	Roller	Ball	2350	34x4	34x4
Cone	Sel	3	Motor	Shaft	120	[2]56	P. Steel	Plain	Roller	Roller	2250	34x3½	34x3½
Cone	Sel	3	Motor	Shaft	110	56	P. Steel	Plain	Roller	Roller	2100	34x3½	34x3½
M. Disc	Sel	3	Unit	Shaft	112	56	P. Steel	Plain	Ball	Ball	2150	34x3½	34x3½
Disc	Sel	3	Unit	Shaft	117	56	P. Steel	Plain	Ball	Ball	2400	34x3½	34x3½
Disc	Sel	3	Unit	Shaft	117	56	P. Steel	Plain	Ball	Ball	2200	34x3½	34x3½
Disc	Sel	3	Unit	Shaft	117	56	P. Steel	Plain	Ball	Ball	2500	35x4	35x4
Disc	Sel	3	Unit	Shaft	117	56	P. Steel	Plain	Ball	Ball	.....	35x4	35x4
Disc	Sel	3	Unit	Shaft	117	56	P. Steel	Plain	Ball	Ball	.....	35x4	35x4
Disc	Sel	3	Unit	Shaft	124	56	P. Steel	Plain	Ball	Ball	.....	36x4	36x4
Disc	Sel	3	Unit	Shaft	124	56	P. Steel	Plain	Ball	Ball	2750	35x4	36x4
Disc	Sel	3	Unit	Shaft	124	56	P. Steel	Plain	Ball	Ball	2850	36x4½	36x4½
Disc	Sel	3	Unit	Shaft	115	56	P. Steel	Plain	Roller	Roller	2800	34x4	34x4
Disc	Sel	3	Unit	Shaft	115	56	P. Steel	Plain	Roller	Roller	2850	34x4	34x4
Disc	Sel	3	Unit	Shaft	115	56	P. Steel	Plain	Roller	Roller	2500	34x4	34x4
Disc	Sel	3	Unit	Shaft	115	56	P. Steel	Plain	Roller	Roller	2600	34x4	34x4
Disc	Sel	3	Unit	Shaft	115	56	P. Steel	Plain	Roller	Roller	3400	35x4½	35x4½
M. disc	Sel	4	Unit	Shaft	118	56	P. Steel	Plain	Roller	Roller	2975	36x4	36x4
M. disc	Sel	4	Unit	Shaft	118	56	P. Steel	Plain	Roller	Roller	2975	36x4	36x4
M. disc	Sel	4	Unit	Shaft	118	56	P. Steel	Plain	Roller	Roller	2975	36x4	36x4
M. disc	Sel	4	Unit	Shaft	118	56	P. Steel	Plain	Rnller	Roller	2975	36x4	36x4
M. disc	Sel	4	Unit	Shaft	118	56	P. Steel	Plain	Roller	Roller	2975	36x4	36x4
Cone	Sel	3	Unit	Shaft	110	56	P. Steel	Plain	Plain	Ball	2150	34x3½	34x3½
Cone	Sel	3	Unit	Shaft	110	56	P. Steel	Plain	Plain	Ball	2200	34x3½	34x3½
Cone	Sel	3	Unit	Shaft	110	56	P. Steel	Plain	Plain	Ball	2200	34x3½	34x3½
Cone	Sel	3	Unit	Shaft	110	56	P. Steel	Plain	Plain	Ball	2150	34x3½	34x3½
Cone	Sel	3	Unit	Shaft	110	56	P. Steel	Plain	Plain	Ball	2350	35x4	35x4
Cone	Sel	3	Unit	Shaft	110	56	P. Steel	Plain	Plain	Ball	2200	35x4	35x4
Cone	Sel	3	Unit	Shaft	110	56	P. Steel	Plain	Plain	Ball	2250	35x4	35x4
Cone	Sel	3	Unit	Shaft	110	56	P. Steel	Plain	Plain	Ball	2250	33x4	33x4
Cone	Sel	3	Unit	Shaft	110	56	P. Steel	Plain	Plain	Ball	2300	33x4	33x4

[2] Or 60 inches

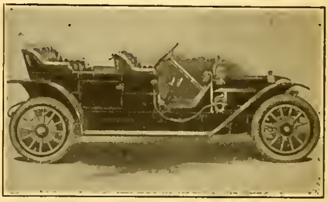
STAVER-CHICAGO—Staver Carriage Co., Chicago, Ill.
VELIE—Velie Motor Vehicle Co., Moline, Ill.
WASHINGTON—Carter Motor Car Corp., Washington, D. C.
WARREN-DETROIT—Warren Motor Car Co., Detroit, Mich.

of automobile motors, and to a considerable extent it is for the users of automobiles to know something about the thermal functions and be on their guard against poor relations which are likely to obtain when more attention is given to the polishing of the brass work than is accorded the machinery equipment.

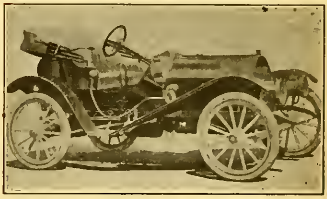
In the purchase of an automobile, then, while it is proper to learn how to handle the clutch, apply the brakes and adjust the spark and throttle control, there still remains the little detail of becoming acquainted with the motor and the methods of use that will appease the thermal relations. It is sheer nonsense for a man, even though he may not be a machinist, to maintain that he cannot familiarize himself with the details of design of a simple automobile sufficiently for him to adjust the carbureter, regulate the spark, look after the lubrication, and, if necessary, time the valves. It is even possible for him to grind the valves from time to time in order that they may be tight; unless they are tight the result will be poor; a loss of power is inevitable.



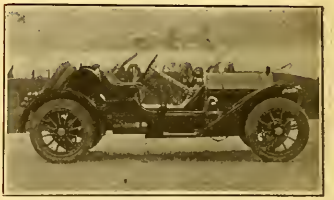
Clark torpedo type of roadster



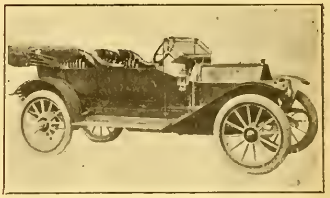
Otto type C touring car



Paige-Detroit, roadster

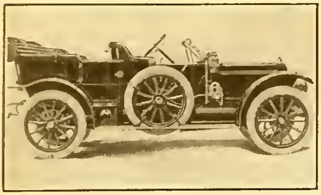


Velie smart type of roadster



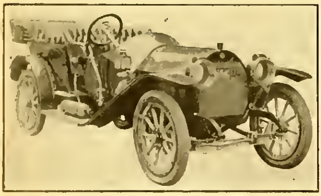
Norwalk 35 fore-door four-passenger torpedo

Details of Passenger Automobiles

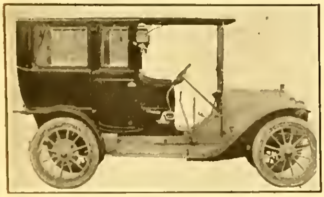


Rambler fore-door type of touring car

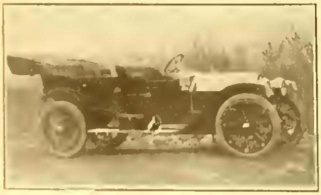
F. A. L. fore-door car with rumble



Carhartt demi-tonneau



Dorris town limousine



[illegible]Kar fore-door touring car

BESIDES the automobiles that were tabulated as exhibiting at the Garden Palace under the banner of the A. M. C. M. E. A., there are quite a the practice of Thomas B. Jeffery Company, of Kenasha, Wis., to conduct twenty-four makes that are here tabulated, the majority of the models na in most cases the agents are fortified to the extent of having the assistance of good cheer os the season affords.

It is claimed by some of these makers that a better chance may be had and should the occasion arise, it is also possible to conduct a demonstratian. and discussed with comfort and without loss of time. Many of the sales rooms the agents are receiving much support from the friends who know the qualities have been patrons in the past, but who may desire to join the ever-swelling ranks.

MAKE AND MODEL	Price	H.P.A.L.A.M.	BODY		MOTOR				COOLING		IGNITION		Lubrication
			Type	Seats	Cyl.	Bore Inches	Stroke Inches	Cyl. Cast	Radi-ator	Pump	Mag-neto	Battery	
Black Crow 10	$1000	25.6	R'bout.	2	4	4	4½	Blcck.	H'comb..	None..	H. T...	Dry....	Mech...
Black Crow 11	1100	25.6	Surrey..	2	4	4	4½	Block.	H'eomb .	None..	H. T...	Dry....	Mech...
Black Crow 12	1150	25.6	D.ton..	2	4	4	4½	Blcck.	H'comb .	None .	H. T...	Dry....	Mech...
Black Crow 13	1300	27.2	Tour'g .	5	4	4⅛	4¾	Pairs..	H'comb.	None .	H. T...	Dry....	Mech...
Black Crow 15	1500	28.9	Torp'o.	5	4	4¼	4½	Pairs .	H'comb.	None..	H. T...	Dry....	Mech...
Black Crow 16	1650	30.6	R'bout.	2	4	4⅜	5	Pairs..	H'comb .	None .	H. T...	Dry....	Mech..
Black Crow 17	1750	30.6	Torp'o..	5	4	4⅜	5	Pairs..	H'comb.	None..	H. T...	Dry....	Mech..
Black Crow 20	2000	30.6	Torp'o..	7	4	4⅜	5	Pairs..	H'comb..	None..	H. T...	Dry....	Mech..
Carhartt B	2250	28.9	Tour'g..	5	4	4¼	4½	Pairs..	H'eomb..	Cent 'fl	H. T...	Storage	F. feed.
Carhartt C	2250	28.9	R'bout.	2	4	4¼	4½	Pairs..	H'comb..	Cent 'fl	H. T...	Storage	F. feed.
Carhartt E	2250	28.9	D. ton..	4	4	4¼	4½	Pairs..	H'eomb..	Cent 'fl	H. T...	Storage	F. feed.
Carhartt J	1100	25.0	R'ster..	3	4	4	4	Pairs..	H'eomb..	Cent 'fl	H. T...	Dry....	F. feed.
Cino	2250	34.2	Tour'g..	5	4	4⅜	5	Pairs..	Tubular.	Cent 'fl	H. T...	Dry....	Splash.
Derain	4000	....	Tour'g..	5	4	5	5½	Pairs..	Tubular.	Cent 'fl	H. T...	....	Pump..
Derain	......	....	R'hout.	2	4	5	5½	Pairs..	Tubular.	Cent 'fl	H T...	....	Pump..
Derain	......	....	Tour'g..	7	4	5	5½	Pairs..	Tubular	Cent 'fl	H. T...	....	Pump.
Dorris F	2500	30.6	Tcur'g..	5	4	4¾	5	Pairs..	Tubular.	Cent 'fl	H. T...	Dry....	Splash.
Dorris F	2500	30.6	R'ster .	2	4	4⅜	5	Pairs..	Tubular.	Cent 'fl	H. T...	Dry....	Splash.
Dorris F	3600	30.6	Limous.	7	4	4⅜	5	Pairs..	Tubular.	Cent 'fl	H. T...	Dry....	Splash.
Dorris F	2650	30.6	Coupe..	2	4	4⅜	5	Pairs..	Tubular.	Cent 'fl	H. T...	Dry....	Splash..
Empire "Twenty" C	950	19.6	R'ster..	2	4	3½	4	Block.	Tubular.	None..	L. T....	None...	Splash.
Falcar N	1850	27.2	F.d. Tg.	5	4	4⅛	5¼	Pairs..	Tubular.	Cent 'fl	H. T...	Dry....	Pump..
Falcar N	1850	27.2	T ton..	4	4	4⅛	5¼	Pairs..	Tubular	Cent 'fl	H. T...	Dry....	Pump..
Falcar N	1850	27.2	F d.Rr..	3	4	4⅛	5¼	Pairs..	Tubular.	Cent 'fl	H. T...	Dry....	Pump..
Falcar N	1850	27.2	Speed..	2	4	4⅛	4¼	Pairs..	Tubular.	Cent 'fl	H. T...	Dry....	Pump..
Fuller Special "A"	2000	36.0	Tour'g..	7	4	4¾	5	Single.	Cellular..	Gear..	H. T...	Dry....	Splash..
Fuller "A"	1600	32.0	Tour'g..	4	4	4½	5	Single.	Cellular..	Gear..	H. T...	Dry....	Splash..
Fuller "A-2"	1350	25.0	Tour'g..	4	4	4	4	Single.	Cellular..	Gear..	H. T...	Dry.....	Splash..
Fuller "F" Special	1000	25.0	R'ster..	3	4	4	4	Single	Cellular..	Gear..	H. T....	Dry....	Splash..
G.J.G. Junior	1000	....	R'bout.	2	4	4¾	5	Pairs..	H'comb..	Cent 'fl	H. T...	None...	Splash.
G.J.G. Pirate	2500	....	R'ster..	2	4	4¾	5	Pairs..	H'comb..	Cent 'fl	H. T...	None...	Spalsh..
G J.G. Scout	2500	....	Torp'o..	4	4	4¾	5	Pairs..	H'comb..	Cent 'fl	H. T...	None...	Spalsh..
G.J.G. Comfort	2500	....	Tour'g..	5	4	4¾	5	Pairs..	H'comb..	Cent 'fl	H. T...	None...	Splash..
G.J.G. Carryall	2750	....	Carryall	7	4	4¾	5	Pairs..	H'comb.	Cent 'fl	H. T...	None...	Splasb.
Great Smith	2500	32.4	Torp'o..	4	4	4½	5	Single.	Cellular..	Gear..	H. T...	Dry.....	Splash..
Great Smith	2500	32.4	T. ton..	4	4	4½	5	Single.	Cellular .	Gear..	H. T...	Dry....	Spalsh.
Great Smith	2500	32.4	Tcur'g .	5	4	4½	5	Single.	Cellular..	Gear..	H. T...	Dry....	Splash..
Great Smith	2500	32.4	R'bout.	2	4	4½	5	Single.	Cellular..	Gear..	H. T...	Dry....	Splash.
Great Western Forty	1600	28.9	Tour'g.	5	4	4¼	5	Sep...	Tubular.	Cent 'fl	H. T...	Dry....	Automatic
Great Western Forty	1600	28.9	D. ton .	4	4	4¼	5	Sep...	Tubular.	Cent 'fl	H. T...	Dry....	
Great Western Forty	1650	28.9	Fore-D.	5	4	4¼	5	Sep...	Tubular.	Cent 'fl	H. T...	Dry....	
Great Western Forty	1600	28.9	R'ster..	2	4	4¼	5	Sep...	Tubular.	Cent 'fl	H. T...	Dry....	
Great Western Forty	1750	28.9	Torp'o..	4	4	4¼	5	Sep...	Tubular.	Cent 'fl	H. T...	Dry....	

BLACK CROW—Otto F. Rost, 1593 Broadway, New York City.
CARHARTT—Carhartt Auto Sales Co., Hotel Plaza, New York City.
CINO—Haberer & Co., Cincinnati, O.
DERAIN—Derain Motor Co., Cleveland, O.
DORRIS—Dorris Motor Car Co., St. Louis, Mo.
EMPIRE—Empire Motor Car Co., Indianapolis, Ind.

If the automobile pulls hard and the motor seems to be in good order, slack off upon the brakes.

on the American Market for 1911

under the banner of the A. L. A. M., and the cars that are on show at the
number of automobile makers who are showing in private. It has always been
a private exhibition in New York City, and this year is no exception. Of the
y be examined at the sales rooms of the New York representatives, and
the maker's sales staff, with an extended corps of trained assistants and such

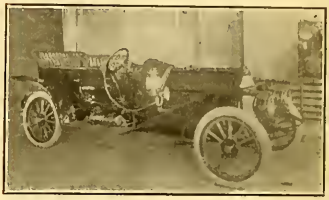
to examine the automobiles at the showrooms than is possible at the shows.
Moreover there is a greater degree of privacy so that business can be taken up
are fitted out in the most elaborate way and it is not too much to say that
of their wares, and welcome is invariably extended to not only those who
The addresses of the private exhibitors are given below the tabulations.

Clutch	TRANSMISSION				Wheelbase	Tread	Frame	BEARINGS			Weight	TIRES	
	Type	Speeds	Location	Drive				Crank-shaft	Trans-mis'n	Axle		Front	Rear
M. Disc...	Sel....	3	R. Axle .	Shaft....	109	56	P. Steel..	Plain...	Roller.	Roller...	.....	32x3	32x3½
M. Disc ..	Sel....	3	R. Axle .	Shaft....	109	56	P. Steel..	Plain...	Roller.	Roller...	.....	32x3	32x3½
M. Disc...	Sel....	3	R. Axle .	Shaft....	109	56	S. Pteel..	Plain...	Roller.	Roller...	.....	32x3	32x3½
M. Disc...	Sel....	3	R. Axle .	Shaft....	112	56	P. Steel..	Plain...	Roller.	Roller...	.....	32x3½	32x3½
M. Disc...	Sel....	3	R. Axle .	Shaft....	112	56	P. Steel..	Plain...	Roller.	Roller...	.....	34x3½	34x3½
M. Disc...	Sel....	3	R. Axle .	Shaft....	120	56	P. Steel..	Plain...	Roller.	Roller...	.....	34x3½	34x3½
M. Disc ..	Sel....	3	R. Axle .	Shaft....	120	56	P. Steel..	Plain...	Roller.	Roller...	.....	34x4	34x4
M. Disc...	Sel....	3	R. Axle .	Shaft....	120	56	P. Steel..	Plain...	Roller.	Roller...	.....	36x4	36x4
M. Disc...	Sel....	3	S. Frame	Shaft....	118	56	P. Steel..	Plain ..	Ball...	Roller...	2800	34x4	34x4
M. Disc...	Sel ...	3	S. Frame	Shaft....	118	56	P. Steel..	Plain ..	Ball...	Roller...	2600	34x4	34x4
M. Disc...	Sel....	3	S. Frame	Shaft....	118	56	P. Steel..	Plain...	Ball...	Roller...	2700	34x4	34x4
Cone.....	Sel....	3	S. Frame	Shaft....	108	56	P. Steel..	Plain...	Ball...	Roller...	1800	23x3	23x3½
Cone.....	Sel....	3	Amid'p..	Shaft....	113	56	P. Steel..	Plain...	Ball...	Roller..	2890	34x4	34x4
Cone.....	Sel....	3	....	Shaft....	125½	56	P. Steel .	Plain...	Ball...	Ball....	.....	36x4	36x5
Cone.....	Sel....	3	....	Shaft....	125½	56	P. Steel..	Plain...	Ball...	Ball....	.....	36x4	36x5
Cone.....	Sel....	3	....	Shaft....	125½	56	P. Steel..	Plain...	Ball...	Ball....	.....	36x4	36x5
M. Disc...	Sel....	3	Unit....	Shaft....	115	56	P. Steel..	Plain...	Roller.	Roller..	2950	36x4	36x4
M. Disc...	Sel....	3	Unit....	Shaft....	115	56	P. Steel..	Plain...	Roller.	Roller..	2700	36x4	36x4
M. Disc...	Sel ...	3	Unit....	Shaft....	115	56	P. Steel..	Plain...	Roller.	Roller..	3100	36x4	36x4
M. Disc...	Sel....	3	Unit....	Shaft....	115	56	P. Steel..	Plain. .	Roller.	Roller..	3000	36x4	36x4
Cone.....	Sel....	3	Axle.....	Shaft....	96	56½	P. Steel..	Plain...	Ball...	Roller..	1575	32x3½	32x3½
Cone.....	Sel.....	3	Unit....	Shaft....	115½	56	P. Steel..	Plain...	Ball...	Ball....	2650	34x4	34x4
Cone.....	Sel....	3	Unit....	Shaft....	115½	56	P. Steel..	Plain...	Ball...	Ball....	2650	34x4	34x4
Cone.....	Sel....	3	Unit....	Shaft....	115½	56	P. Steel..	Plain...	Ball...	Ball....	2650	34x4	34x4
Cone.....	Sel....	3	Unit....	Shaft....	115½	56	P. Steel..	Plain...	Ball...	Ball....	2650	34x4	34x4
M. Disc...	P. or S.	3	S. Frame	Shaft....	118	56	P. Steel..	Plain...	Roller.	Roller..	2500	34x4	34x4
M. Disc...	P. or S.	3	S. Frame	Shaft....	115	56	P. Steel..	Plain...	Roller.	Roller..	2200	33x4	33x4
M. Disc...	Plane..	2	S. Frame	Shaft....	110	56	P. Steel..	Plain...	Plain..	Roller..	2000	32x3½	32x3½
M. Disc...	Plane..	2	S. Frame	Shaft....	100	56	P. Steel..	Plain...	Plain..	Roller..	1700	31x3½	31x3½
Cone.....	Sel....	3	Amid p..	Shaft....	104	56	P. Steel..	Plain...	Plain..	Roller..	1400	32x3½	32x3½
Cone.....	Sel....	3	S Frame	Shaft....	121	56	P. Steel..	Plain...	Ball...	Ball....	2600	34x4	34x4
Cone.....	Sel....	3	S. Frame	Shaft....	121	56	P. Steel..	Plain...	Ball...	Ball....	2600	34x4	34x4
Cone.....	Sel....	3	S. Frame	Shaft....	121	56	P. Steel..	Plain...	Ball...	Ball....	2600	34x4	34x4
Cone.....	Sel....	3	S. Frame	Shaft....	121	56	P. Steel..	Plain...	Ball...	Ball....	2600	34x4	34x4
M. Disc...	Sel....	3	Frame...	Shaft....	115	56	P. Steel..	Plain...	Roller.	Roller..	2500	36x4	36x4
M. Disc...	Sel....	3	Frame...	Shaft....	115	56	P. Steel..	Plain...	Roller.	Roller..	2500	36x4	36x4
M. Disc...	Sel....	3	Frame...	Shaft....	115	56	P. Steel..	Plain...	Roller.	Roller..	2600	36x4	36x4
M. Disc...	Sel....	3	Frame...	Shaft....	110	56	P. Steel..	Plain...	Roller.	Roller..	2450	36x4	36x4
Cone.....	Sel....	3	Amid p..	Shaft....	114	56	P. Steel..	Plain...	Roller.	Roller..	2200	34x3½	34x3½
Cone. ...	Sel....	3	Amid'p..	Shaft....	114	56	P. Steel..	Plain...	Roller.	Roller..	2150	34x3½	34x3½
Cone.....	Sel....	3	Amid'p..	Shaft....	114	56	P. Steel..	Plain...	Roller.	Roller..	2250	34x3½	34x3½
Cone.....	Sel....	3	Amid'p..	Shaft....	114	56	P. Steel..	Plain...	Roller.	Roller..	2050	34x3½	34x3½
Cone.....	Sel....	3	Amid'p..	Shaft....	114	56	P. Steel..	Plain...	Roller.	Roller..	2300	35x4	35x4

F. A. L. CAR—F. A. L. Motor Co., Chicago, Ill.
FULLER—Fuller Buggy Co., Jackson, Mich.
G. J. G.—G. J. G. Motor Car Co., White Plains, N. Y.
GREAT SMITH—Smith Automobile Co., Topeka, Kan.
GREAT WESTERN—Great Western Automobile Co., Peru, Ind.

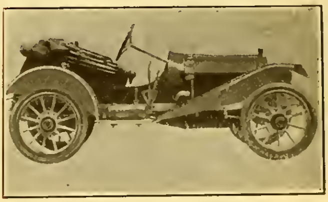
If noise is being made and it is hard to find, apply grease to all the bearings.

Halladay five-passenger touring car

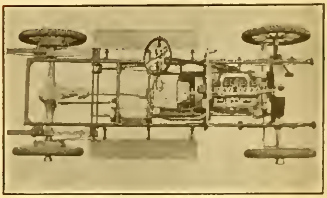


G. J. G four-passenger torpedo

Fuller touring regular car

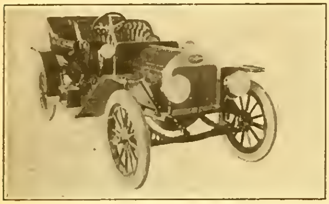


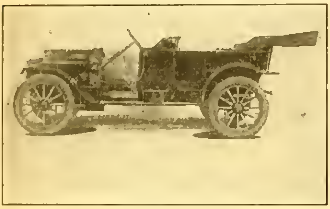
Empire seat-for-two runabout



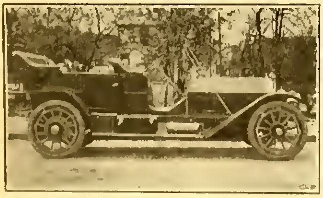
Cino chassis in plan

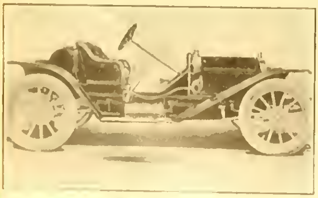
Details of Passenger Automobiles


Marathon Fire Chief type of touring car


Westcott standard type of touring car

Nance fore-door runabout type


Pittsburgh "six" model D touring car


[illegible] roadster type of car

MAKE AND MODEL	Price	H.P.A.L.A.M.	BODY		MOTOR				COOLING		IGNITION		Lubrication
			Type	Seats	Cyl.	Bore Inches	Stroke Inches	Cyl. Cast	Radiator	Pump	Magneto	Battery	
Grout 45-D	$2850	36.1	Fore-D.	7	4	4¾	5	Single.	Cellular	Gear	H. T.	Dry	Splash
Grout 45-E	2750	36.1	Tour'g.	7	4	4¾	5	Single.	Cellular	Gear	H. T.	Dry	Splash
Grout 45-F	2500	36.1	Tour'g.	5	4	4¾	5	Single.	Cellular	Gear	H. T.	Dry	Splash
Grout 45-G	2500	36.1	Tonett.	4	4	4¾	5	Single.	Cellular	Gear	H. T.	Dry	Splash
Grout 36-H	1850	32.4	Tour'g.	5	4	4½	5	Single.	Tubular.	Gear	H. T.	Dry	Splash
Grout 35-I	1850	32.4	Tonett.	4	4	4½	5	Single.	Tubular.	Gear	H. T.	Dry	Splash
Halladay	2650	36.1	Limous.	7	4	4¾	5	Single.	H'comb.	Gear	H. T.	Dry	Pump
Halladay	2650	36.1	Tour'g.	4	4	4¾	5	Single.	H'comb.	Gear	H. T.	Dry	Pump
Halladay	2650	36.1	R'ster.	4	4	4¾	5	Single.	H'comb.	Gear	H. T.	Dry	Pump
Halladay	1700	32.4	Limous.	5	4	4½	5	Single.	H'comb.	Gear	H. T.	Dry	Pump
Halladay	1700	32.4	Tour'g.	4	4	4½	5	Single.	H.comb.	Gear	H. T.	Dry	Pump
Halladay	1700	32.4	R'ster.	4	4	4½	5	Single.	H'comb.	Gear	H. T.	Dry	Pump
Halladay	1700	32.4	T. ton.	2	4	4½	5	Single.	H.comb.	Gear	H. T.	Dry	Pump
Halladay "J"	1500	25.6	Tour'g.	5	4	4	4	Single.	Tubular.	Gear	H. T.	Dry	Pump
Halladay "J"	1500	25.6	R'ster.	4	4	4	4	Single.	Tubular.	Gear	H. T.	Dry	Pump
Halladay "J"	1500	25.6	T. ton.	2	4	4	4	Single.	Tubular.	Gear	H. T.	Dry	Pump
Halladay "G"	1250	25.6	Tour'g.	5	4	4	4	Single.	Tubular.	Gear	H. T.	Dry	Pump
Halladay "G"	1250	25.6	R'ster.	3	4	4	4	Single.	Tubular.	Gear	H. T.	Dry	Pump
Herreshoff 25	950	18.2	R'bout.	3	4	3⅜	3¾	Block.	Tubular.	Syph'n	H. T.	Dry	Pump
Herreshoff 20-A	1500	18.2	R'bout.	3	4	3⅜	3¾	Pairs.	Tubular.	Syph'n	H. T.	......	Pump
Herreshoff 20-A	1500	18.2	T'bout.	4	4	3⅜	3¾	Pairs.	Tubular.	Syph'n	H. T.	......	Pump
Herreshoff 20-B	1500	18.2	Tour'g.	5	4	3⅜	3¾	Pairs.	Tubular.	Syph'n	H. T.	...	Pump
Kline Kar 4-40	2250	28.9	Tour'g.	5	4	4¼	5¼	Block.	Cellular	Cent 'fl	H. T.	Dry	Pump
Kline Kar 4-40	2250	28.9	T. ton.	4	4	4¼	5¼	Block.	Cellular	Cent 'fl	H. T.	Dry	Pump
Kline Kar 4-40	2200	22.5	T. ton.	2	4	4¼	5¼	Block.	Cellular	Cent 'fl	H. T.	Dry	Pump
Kline Kar 4-24	1500	25.6	R'ster.	2	4	3¾	4½	Sepa.	Cellular	Cent 'fl	H. T.	Dry	Pump
Kline Kar 4-30	1675	25.6	Tour'g.	5	4	4	4½	Sepa.	Cellular	Cent 'fl	H. T.	Dry	Pump
Kline Kar 4-30	1675	25.6	T. ton.	4	4	4	4½	Sepa.	Cellular.	Cent 'fl	H. T.	Dry	Pump
Kline Kar 4-30	1600	25.6	R'ster.	2	4	4	4½	Sepa.	Cellular	Cent 'fl	H. T.	Dry	Pump
Kline Kar 6-60	3250	43.8	Tour'g.	7	6	4¼	5¼	Block.	Cellular	Cent 'fl	H. T.	Dry	Pump
Kline Kar 6-60	2950	43.8	R'ster.	2	6	4¼	5¼	Block.	Cellular	Cent 'fl	H. T.	Dry	Pump
Kline Kar 6-60	2700	40.9	Tour'g.	5	6	4$\frac{3}{32}$	5	Block.	Cellular	Cent 'fl	H. T.	Dry	Pump
Kline Kar 6-60	2700	40.9	T' ton.	4	6	4$\frac{3}{32}$	5	Block.	Cellular	Cent 'fl	H. T.	Dry	Pump
Kline Kar 6-60	2650	40.9	R'ster.	2	6	4$\frac{3}{32}$	5	Block.	Cellular	Cent 'fl	H. T.	Dry	Pump
Marathon	1700	28.9	Tor. Tg	5	4	4¼	4½	Pairs.	Cellular	Syph'n	H. T.	Dry	Splash
Marathon	1500	28.9	Tor. Rr.	2	4	4¼	4½	Pairs.	Cellular	Syph'n	H. T.	Dry	Splash
Marathon	1500	28.9	Tour'g.	5	4	4¼	4½	Pairs.	Cellular	Syph'n	H. T.	Dry	Splash
Marathon	1500	28.9	R'ster.	2	4	4¼	4½	Pairs.	Cellular	Syph'n	H. T.	Dry	Splash
Nance Six	1900	31.6	Tour'g.	5	6	3⅝	4$\frac{1}{16}$	Pairs.	H'comb.	Cent 'fl	H. T.	Dry	F. feed.
Nance Six	1900	31.6	R'bout.	2	6	3⅝	4$\frac{1}{16}$	Pairs.	H'comb.	Cent 'fl	H. T.	Dry	F. feed.
Pittsburg Six D	4000	54.1	Tour'g.	7	6	4¾	5¼	Sepa.	Cellular	Gear	H. T.	Storage	Pump
Pittsburg Six E	4000	54.1	Tour'g.	5	6	4¾	5¼	Sepa.	Cellular	Gear	H. T.	Storage	Pump
Pittsburg Six B	3000	54.1	R'ster.	3	6	4¾	5¼	Sepa.	Cellular	Gear	H. T.	Storage	Pump
Rambler 65	.....	32.4	....	..	4	4½	4½	Sepa.	Rambler	Cent 'fl	H. T.	Storage	Mech.
Rambler 63	.....	32.4	Tour'g.	5	4	4½	4½	Sepa.	Rambler	Cent 'fl	H. T.	Storage	Mech.
Rambler 64	.....	40.0	....	..	4	5	5½	Sepa.	Rambler	Cent 'fl	H. T.	Storage	Mech.
Rambler 65	.....	40.0	....	..	4	5	5½	Sepa.	Rambler	Cent 'fl	H. T.	Storage	Mech.
Sharp Arrow	3000	40.0	Tour'g.	5	4	5	5	Pairs.	H'comb.	Cent 'fl	H. T.	Dry	Splash
Sharp Arrow	2950	40.0	R'bout.	2	4	5	5	Pairs.	H'comb.	Cent 'fl	H. T.	Dry	Splash
Sterling O-1	1700	23.6	R'ster.	2	4	4	5	Single.	H'comb.	Cent 'fl	H. T.	Dry	Splash
Sterling O-2	1750	23.6	Town.	4	4	4	5	Single.	H'comb.	Cent 'fl	H. T.	Dry	Splash
Sterling O-3	1750	23.6	Tour'g.	5	4	4	5	Single.	H'comb.	Cent 'fl	H. T.	Dry	Splash
Sterling O-4	1850	28.9	Tour'g.	7	4	4¼	5	Single.	H'comb.	Cent 'fl	H. T.	Dry	Splash
Sterling O-5	1800	28.9	Tour'g.	2	4	4¼	5	Single.	H'comb.	Cent 'fl	H. T.	Dry	Splash
Sterling	2000	28.9	Torp'o.	6	4	4¼	5	Single.	H'comb.	Cent 'fl	H. T.	Dry	Splash.
Westcott G	2000	....	R'ster.	7	4	4¾	5	Single.	H'comb.	Cent 'fl	H. T.	Dry	Splash
Westcott F	2000	....	F.d.Tg.	5	4	4¾	5	Single.	H'comb.	Cent 'fl	H. T.	Dry	Splash
Westcott H	2200	....	F.d.Tg.	7	4	4¾	5	Single.	H'comb.	Cent 'fl	H. T.	Dry	Splash
Westcott J	2000	....	R'ster.	4	4	4½	5	Single.	H'comb.	Cent 'fl	H. T.	Dry	Splash
Westcott	1900	....	R'ster.	4	4	4½	5	Single.	H'comb.	Cent 'fl	H. T.	Dry	Splash

GROUT—Grout Automobile Co., Orange, Mass.
HALLADAY—Streator Motor Car Co., Streator, Ill.
HERRESHOFF—Herreshoff Motor Co., Detroit, Mich.
KLINE KAR—B. C. K. Motor Car Co., York, Pa.
MARATHON—Southern Motor Works, Nashville, Tenn.
NANCE—Nance Motor Car Co., Philadelphia, Pa.

As a General Rule—

If the radiator heats, it is due to running on a retarded spark.

If the spark is right and the radiator still heats, it may be due to a leaky pump.

If the pump is working satisfactorily, the chances are that too much gasoline is being used.

on the American Market for 1911

Clutch	TRANSMISSION				Wheelbase	Tread	Frame	BEARINGS			Weight	TIRES	
	Type	Speeds	Loca-tion	Drive				Crank-shaft	Trans-mis'n	Axle		Front	Rear
Cone.....	Sel....	3	Amid'p..	Shaft....	123	56	P. Steel..	Plain...	Roller.	Roller..	3120	36x4	37x4½
Cone.....	Sel....	3	Amid'p..	Shaft....	123	56	P. Steel..	Plain...	Roller.	Roller..	3040	36x4	37x4½
Cone.....	Sel....	3	Amid'p..	Shaft....	123	56	P. Steel..	Plain...	Roller.	Roller..	2957	36x4	36x4
Cone.....	Sel....	3	Amid'p..	Shaft....	123	56	P. Steel..	Plain...	Roller.	Roller..	2860	36x4	36x4
Cone.....	Sel....	3	Amid'p..	Shaft....	116	56	P. Steel..	Plain...	Roller.	Roller..	2750	34x4	34x4
Cone.....	Sel....	3	Amid'p..	Shaft....	116	56	P. Steel..	Plain...	Roller	Roller..	2700	34x4	34x4
M. Disc...	Sel....	3	S. Frame	Shaft....	128	56	P. Steel..	Plain...	Ball...	Ball....	3000	36x4½	36x4½
M. Disc...	Sel....	3	S. Frame	Shaft....	128	56	P. Steel..	Plain...	Ball...	Ball....	3000	36x4½	36x4½
M. Disc ..	Sel....	3	S. Frame	Shaft....	128	56	P. Steel..	Plain...	Ball...	Ball....	3000	36x4½	36x4½
M. Disc...	Sel....	3	S. Frame	Shaft....	118½	[1]56	P. Steel..	5 Plain.	Ball...	Ball....	2700	36x3½[1]	36x3½[2]
M. Disc...	Sel....	3	S. Frame	Shaft....	118½	[1]56	P. Steel..	5 Plain.	Ball...	Ball....	2700	36x3½[1]	36x3½
M. Disc...	Sel....	3	S. Frame	Shaft....	118½	[1]56	P. Steel..	5 Plain.	Ball...	Ball....	2700	36x3½	36x3½
M. Disc...	Sel....	3	S. Frame	Shaft....	118½	[1]56	P. Steel..	5 Plain.	Ball...	Ball....	2700	36x3½	36x3½
M. Disc...	Sel....	3	S. Frame	Shaft....	110	[1]56	P. Steel..	Plain...	Ball...	C.& c'ne	2200	36x3½	36x3½
M. Disc...	Sel....	3	S. Frame	Shaft....	110	[1]56	P. Steel..	Plain...	Ball...	C.& c'ne	2200	36x3½	36x3½
M. Disc...	Sel....	3	S. Frame	Shaft....	110	[1]56	P. Steel..	Plain...	Ball...	C.& c'ne	2200	36x3½	36x3½
Cone.....	Sel....	3	Axle.....	Shaft....	104	[1]56	P. Steel..	Plain...	Ball...	Roller..	2000	32x3½	32x3½
Cone.....	Sel....	3	Axle.....	Shaft....	104	[1]56	P. Steel..	Plain...	Ball...	Roller...	2000	32x3½	32x3½
M. Disc...	Sel....	3	Motor...	Shaft....	98	56	P. Steel..	Plain...	Plain..	B. & R.	1200	32x3	32x3
M. Disc...	Sel.....	3	Motor...	Shaft....	100	56	P. Steel	Ball....	Ball...	Plain...	1500	32x3½	32x3½
M. Disc...	Sel....	3	Motor...	Shaft....	100	56	P. Steel..	Ball. ..	Ball...	Plain...	1550	32x3½	32x3½
M. Disc...	Sel....	3	Motor...	Shaft....	105	56	P. Steel..	Ball....	Ball...	Plain...	1750	32x3½	32x3½
Cone.....	Sel....	3	Amid'p..	Shaft....	117	56	P. Steel..	Plain...	Ball...	Ball....	2550	36x4	36x4
Cone.....	Sel....	3	Amid'p.	Shaft....	117	56	P. Steel..	Plain...	Ball...	Roller..	2500	36x4	36x4
Cone.....	Sel....	3	Amid'p..	Shaft....	117	56	P. Steel..	Plain...	Ball...	Roller..	2450	36x4	36x4
Cone.....	Sel....	3	Amid'p..	Shaft....	110	56	P. Steel..	Plain...	Ball...	Roller..	1900	34x3½	34x3½
Cone.....	Sel....	3	Amid'p..	Shaft....	110	56	P. Steel..	Plain...	Ball...	Roller..	2200	34x3½	34x3½
Cone.....	Sel....	3	Amid'p..	Shaft....	110	56	P. Steel..	Plain...	Ball...	Roller..	2150	34x3½	34x3½
Cone.....	Sel....	3	Amid'p..	Shaft....	110	56	P. Steel..	Plain...	Ball...	Roller..	2100	34x3½	34x3½
Cone.....	Sel....	4	Amid'p..	Shaft....	128	56	P. Steel..	Plain...	Ball...	Ball....	3200	38x4	38x4½
Cone.....	Sel....	4	Amid'p..	Shaft....	110	56	P. Steel..	Plain...	Ball...	Ball....	2600	38x4	38x4
Cone.....	Sel....	3	Amid'p..	Shaft....	124	56	P. Steel..	Plain...	Ball...	Roller..	2800	36x4	36x4
Cone.....	Sel....	3	Amid'p..	Shaft....	124	56	P. Steel..	Plain...	Ball...	Roller..	2800	36x4	36x4
Cone.....	Sel....	3	Amid'p..	Shaft....	108	56	P. Steel..	Plain...	Ball...	Roller..	2550	36x4	36x4
M. Disc...	Sel....	3	Unit....	Shaft....	120	56	Channel.	Plain...	Roller.	Roller..	2150	35x4	35x4
M. Disc...	Sel....	3	Unit....	Shaft....	116	56	Channel.	Plain...	Roller.	Roller..	1900	34x3½	34x3½
M. Disc...	Sel....	3	Unit....	Shaft....	116	56	Channel.	Plain...	Roller.	Roller..	2100	34x3½	34x3½
M. Disc...	Sel....	3	Unit....	Shaft....	116	56	Channel.	Plain...	Roller.	Roller..	1900	34x3½	34x3½
M. Disc...	Sel....	3	Unit....	Shaft....	122	56	P. Steel..	Plain...	Ball...	Ball....	2500	34x3½	34x3½
M. Disc...	Sel....	3	Unit....	Shaft....	122	56	P. Steel..	Plain...	Ball...	Ball....	2350	34x3½	34x3½
M. Disc...	Sel....	3	Amid'p..	Shaft....	134	56	P. Steel..	Plain...	Ball...	Ball....	3600	36x4½	36x4½
M. Disc...	Sel....	3	Amid'p..	Shaft....	134	56	P. Steel..	Plain...	Ball...	Ball....	3600	36x4½	36x4½
M. Disc...	Sel....	3	Amid'p..	Shaft....	134	56	P. Steel..	Plain...	Ball...	Ball....	3600	36x4½	36x4½
M. Disc...	Sel....	3	Unit....	Shaft....	112	56	P. Steel..	Roller..	Roller.	Roller...	.....	36x4	36x4
M. Disc...	Sel....	3	Unit....	Shaft....	112	56	P. Steel..	Roller...	Roller.	Roller...	.....	36x4	36x4
M. Disc...	Sel....	3	Unit....	Shaft....	120	56	P. Steel..	Roller...	Roller.	Roller...	.....	36x4½	36x4½
M. Disc...	Sel....	3	Unit....	Shaft....	128	56	P. Steel..	Roller...	Roller.	Roller...	.....	40x4½	40x4½
Cone.....	Sel....	3	S. Frame	Shaft....	120	56	P. Steel..	Plain...	Ball...	Ball....	2850	36x4	36x4
Cone.....	Sel....	3	S. Frame	Shaft....	110	56	P. Steel..	Plain...	Ball...	Ball....	2650	36x4	36x4
Con.band.	Sel....	3	Axle.....	Shaft....	118	56	P. Steel..	5 Plain.	Ball...	R. & B.	2250	34x3½	34x4½
Con.band.	Sel....	3	Axle.....	Shaft....	118	56	P. Steel..	5 Plain.	Ball...	R. & B.	2300	34x3½	34x3½
Con.band.	Sel....	3	Axle.....	Shaft....	118	56	P. Steel..	5 Plain.	Ball...	R. & B.	2350	34x4	34x4
Con.band.	Sel....	3	Axle.....	Shaft....	118	56	P. Steel..	5 Plain.	Ball...	R. & B.	2500	34x4	34x4
Con.band.	Sel....	3	Axle.....	Shaft....	118	56	P. Steel..	5 Plain.	Ball...	R. & B.	2200	34x3	34x4
Con.band.	Sel....	3	Axle.....	Shaft ...	118	56	P. Steel..	5 Plain.	Ball...	R. & B.	2500	36x4	36x4
Cone.....	Sel....	3	S. Frame	Shaft....	120	56	P. Steel..	Plain...	Ball...	Roller...	3000	36x4	36x4
Cone.....	Sel....	3	S. Frame	Shaft....	120	56	P. Steel..	Plain...	Ball...	Roller...	3000	36x4	36x4
Cone.....	Sel....	3	S Frame	Shaft....	120	56	P. Steel..	Plain...	Ball...	Roller...	3000	36x4	36x4
Cone.....	Sel....	3	S. Frame	Shaft....	112	56	P. Steel..	Plain...	Ball...	Roller...	2700	34x4	34x4
Cone.....	Sel....	3	S. Frame	Shaft....	112	56	P. Steel..	Plain...	Ball...	Roller...	2700	34x4	34x4

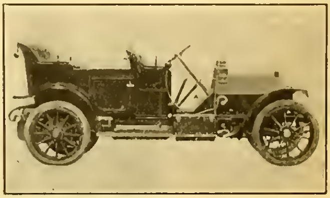
[1] Also 60 inches.

PITTSBURGH—Pittsburgh Motor Car Co., New Kensington, Pa.
RAMBLER—Rambler Automobile Co. of New York, 38 West 62d St., New York City.
SHARP-ARROW—Sharp-Arrow Automobile Co., Trenton, N. J.
STERLING—Elkhart Motor Car Co., Elkhart, Ind.
WESTCOTT—Westcott Motor Car Co., Richmond, Ind.

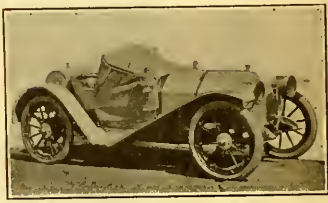
If the supply of gasoline is properly regulated, it may be that the battery is run down.

If the trouble persists, the chances are that the combustion chamber has a thick coating of carbon.

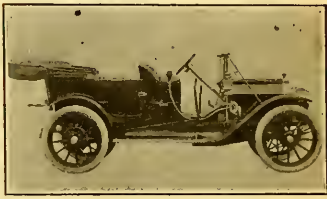
If the combustion chamber is clean, it then remains to blow out the radiator to remove the coating of scale.



Derain five-passenger touring car

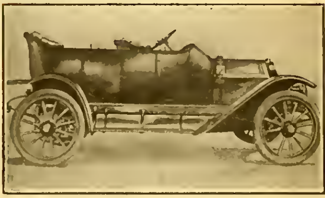


KlineKar Model 6-60



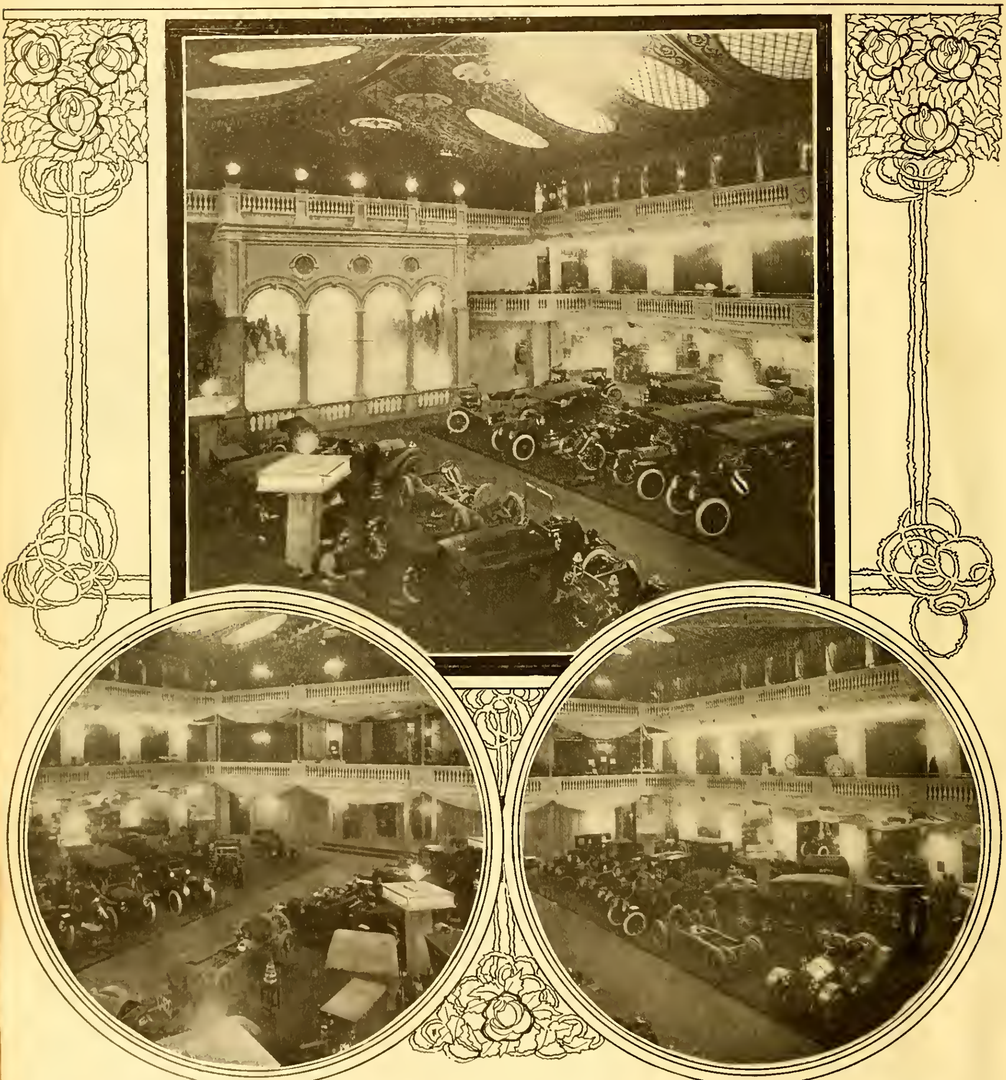
Dorris five-passenger touring car

Front view of Halladay touring car



Great Western fore-door torpedo

A·M·C·M·E·A·



THE MAIN HALL OF THE PALACE AS IT APPEARED FROM SEVERAL VIEWPOINTS

UNDER unfavorable weather conditions, presenting a big array of both pleasure and commercial automobiles, the Eleventh International Automobile Show, in connection with the First Annual Aeroplane Show, opened New Year's eve at the Grand Central Palace. An immense throng attended the opening and at each of the succeeding sessions the aisles and galleries have been well filled.

The aeroplane exhibit may be summed up in a few words by saying that it is the most complete ever held in the United States. The crepe-draped Bleriot, used by Moisant in his channel flight, and a Wright racer, similar to the one in which Hoxsey met his death, were constantly surrounded by spectators.

Thirty-seven makes of pleasure cars and twenty-four commercials were on show, the former in the main hall and wings

L

wi

at

op

gal